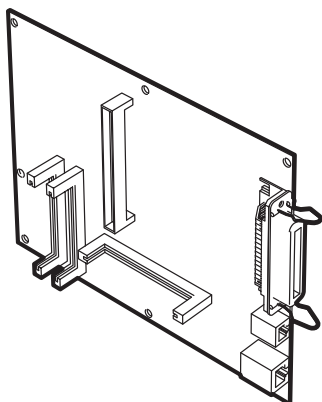


SHARP SERVICE MANUAL

CODE: 00ZARP17//A1E



DIGITAL MULTIFUNCTIONAL SYSTEM OPTION PRINTER EXPANSION KIT

AR-PK1
MODEL AR-P17

CONTENTS

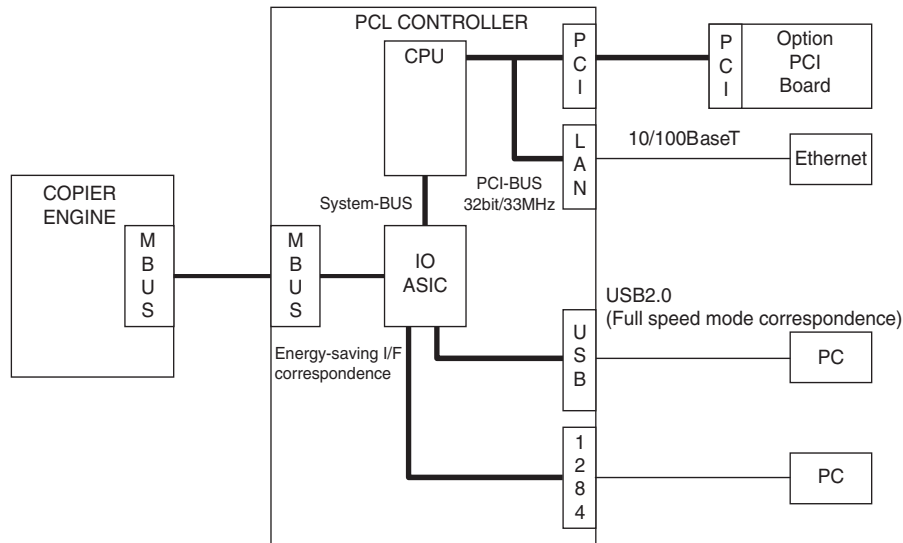
[1] SYSTEM CONFIGURATION.....	1-1
[2] SPECIFICATIONS.....	1-1
[3] INSTALLATION.....	3-1
[4] SETTING AND ADJUSTMENTS.....	4-1
[5] SIMULATION.....	5-1
[6] CONFIGURATION REPORT AND TEST PAGE.....	6-1
[7] FLASH ROM VERSION UP PROCEDURE.....	7-1
[8] PRINTER STATUS MONITOR/PRINTER MANAGEMENT UTILITY	8-1
[9] TROUBLE CODE LIST	9-1
[10] ELECTRICAL SECTION	10-1

Parts marked with “△” are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

CONTENTS

[1] SYSTEM CONFIGURATION	1-1	[5] SIMULATION	
[2] SPECIFICATIONS		1. Operating procedures and operations	5-1
1. Basic specification	1-1	2. Simulation code list	5-1
2. Printer controller board	1-1	3. Details	5-1
3. IMC controller board	2-1	[6] CONFIGURATION REPORT AND TEST PAGE	
4. Network specification	2-1	1. Kinds of test pages	6-1
5. Printer driver specification	2-1	2. Print method	6-1
A. System	2-1	[7] FLASH ROM VERSION UP PROCEDURE	
B. System requirement	2-1	1. Printer Control Board firmware download method	7-1
C. Print quality	2-1	2. Others (Troubleshooting)	7-2
D. Paper handling specifications	2-1	[8] PRINTER STATUS MONITOR/PRINTER ADMINISTRATION UTILITY	
E. Print enable area	2-2	1. Printer status monitor	8-1
F. Print reference	2-2	A. Purpose	8-1
[3] INSTALLATION		B. Operating environment	8-1
1. AR-P17	3-1	C. V3.1 limitations and notes	8-1
A. Parts included	3-1	D. Outline of functions	8-1
B. Installation procedure	3-1	2. Printer administration utility	8-3
C. Mounting of additional memory	3-2	A. Purpose	8-3
2. AR-PK1	3-2	B. Operating environment	8-3
A. Parts included	3-2	C. Outline of functions	8-3
B. Installation procedure	3-2	D. Note	8-3
[4] SETTING AND ADJUSTMENTS		[9] TROUBLE CODE LIST	9-1
1. Printer condition settings	4-1	[10] ELECTRICAL SECTION	
A. List	4-1	1. Block diagram	10-1
B. Operating procedure	4-1		
C. Setting item	4-1		
2. AR-PK1 (PS expansion kit) setup	4-2		
A. Setup content	4-2		
B. Setup enable conditions	4-2		
C. Setup menu	4-2		
D. Function cancel menu	4-2		
3. Email alert status	4-2		
A. Setup contents	4-2		
B. Setup enable conditions	4-2		
C. Setup menu	4-2		
D. Function cancel display	4-3		
4. Key operator program list	4-3		

[1] SYSTEM CONFIGURATION



[2] SPECIFICATIONS

1. Basic specification

Item	Detail
Print Speed	AR-M276/M277: 27ppm (600dpi) 13.5ppm (1200dpi) AR-M236/M237: 23ppm (600dpi) 13.5ppm (1200dpi)
Resolution	300dpi, 600dpi, 1200dpi*1
Smoothing	1200dpi x 600dpi
Standard memory	64 MB
Expansion memory *2, 3	DIMM 1 slot 144 pin 128/256MB DIMM
Option memory	8MB flash DIMM
Toner save mode	Standard
Input tray	Multi Bypass tray Tray 1, Tray 2, Tray 3, Tray 4 (Depending on conditions of the machine and option installation.)
Duplex Print	Standard
Finisher	Option
NIC	10/100baseTX (Standard equipped with TCP/IP RF NIC. Others are optional.)
PostScript Level3 *3	Option
Bundled software	Printer driver, PAU, Status monitor, Installer, Acrobat Reader
Barcode font	Option
Operation Manual	Standard (Online manual)
Platform	IBM PC/AT (Include compatible machine) Macintosh

Item		Detail
Support OS (Printer Driver)	Custom PS	Windows 95/98/Me Windows NT 4.0 Windows 2000 Windows XP
	Custom PCL5e	Windows 95/98/Me Windows NT 4.0 Windows 2000 Windows XP
	Custom PCL6	Windows 95/98/Me Windows NT 4.0 Windows 2000 Windows XP
	PPD only	Windows 95/98/Me Windows NT 4.0 Windows2000 Windows XP MacOS 8.6 to 9.x, 10.1 or later
PDL support		PCL5e, PCL6, PostScript Level 3, TIFF, PDF
Resident Fonts	For PS	136 Outline Fonts
	For PCL5e, PCL6	80 Outline Fonts Line Printer
	For PCL	Barcode Fonts (Option)
Screen Fonts	For PS	136 Outline Fonts
	For PCL5e, PCL6	136 Outline Fonts
	For PCL	Barcode Fonts (Option)

*1: 1200dpi mode print is supported only in PCL6 and PS3.

*2: Network scan needs one slot of memory (max. 256MB). When, therefore, network scan is installed, the max. available memory for the printer is 320MB.

*3: PDF direct print is available with PostScript.

2. Printer controller board

Processor	MIPS 64bit
Base memory	64MB (Standard)
Expansion memory	Standard: 144 pin DIMM x 1 slot Max.: 320MB
Parallel I/F	IEEE 1284 compatible x 1
USB I/F	USB 2.0 (Full speed mode correspondence) x 1
Network I/F	10/100baseTX x 1

3. IMC controller board

Page memory	48MB
ROPM Base memory	32MB
ROPM Expansion memory	Standard: 168 pin DIMM x 2 slot Max.: 1056MB

4. Network specification

	Interface	Support OS	Support Protocol
RF NIC	10Base-T 100Base-TX	Windows	TCP/IP only
AR-NC5J	10Base-T 100Base-TX	NetWare, Windows NT, Mac OS	IPX/SPX, TCP/IP, EtherTalk, Peer to Peer (IPX/SPX, TCP/IP), NetBEUI

5. Printer driver specification

A. System

Machine	OS	PCL6 Custom	PCL5e Custom	PostScript Custom	PPD File
IBM PC/AT (Include compatible machine)	Windows 95	Yes	Yes	Yes	Yes
	Windows 98				
	Windows Me				
	Windows NT 4.0				
	Windows 2000				
	Windows XP				
Macintosh	MacOS8.6 to 9.x, 10.1 or later	N/A	N/A	N/A	Yes

D. Paper handling specifications

(1) Paper feed direction

a. Paper size and image transfer direction

Name	Size mm (inch)	Bypass Tray	Tray 1	Tray 2	Tray 3	Tray 4	Duplex	Exit Tray		2tray Finisher		
								Center Tray	Upper Tray	Top Tray	Offset Tray	Staple
A6R	105 × 148	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
B6R	128 × 182	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
Invoice	215.9 × 139.7 (8.5" × 5.5")	Yes	Yes	N/A	N/A	N/A	N/A	Yes	Yes	Yes	N/A	N/A
Invoice-R	139.7 × 215.9 (5.5" × 8.5")	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	N/A	N/A
A5	210 × 148	Yes	Yes	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	N/A
A5R	148 × 210	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	N/A	N/A
B5	257 × 182	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
B5R	182 × 257	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
Executive-R	186.7 × 266.7 (7.35" × 10.5")	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A
Letter	279.4 × 215.9 (11" × 8.5")	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Letter-R	215.9 × 279.4 (8.5" × 11")	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
A4	297 × 210	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
A4-R	210 × 297	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Folio	210 × 330 (8.3" × 13")	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A
Legal	215.9 × 355.6 (8.5" × 14")	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Foolscap	215.9 × 330.2 (8.5" × 13")	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
B4	257 × 364	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
A3	297 × 420	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ledger	279.4 × 431.8 (11" × 17")	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8K	270 × 390	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
16K	270 × 195	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
16KR	195 × 270	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
COM10	4.12 × 9.5	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
C5	162 × 229	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
DL	110 × 220	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
Transparency		Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
Heavy stock		Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A
Label		Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A

B. System requirement

Computer	IBM PC/AT (Include compatible machine) Macintosh
Operating system	Microsoft Windows 95 Microsoft Windows 98 Microsoft Windows Me Microsoft Windows XP Microsoft Windows NT 4.0 Microsoft Windows 2000 MacOS 8.6 to 9.x, 10.1 or later

Note: Hardware requirements such as CPU and RAM for your operating system must be satisfied.

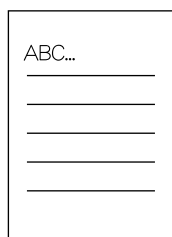
C. Print quality

Mode	Controll (*: Default)	Content
Resolution	1200 dpi	High Quality
	600 dpi*	Basic Resolution
	300 dpi	Alternate Resolution
Smoothing *1	On	Smoothing function is ON.
	Off*	Smoothing function is OFF.
Toner Save Mode *1	On	Toner save function is ON.
	Off*	Toner save function is OFF.
Halftone enhancement *1	On*	Halftone enhancement function is ON.
	Off	Halftone enhancement function is OFF.

*1: Functions on a image of 600dpi or 300dpi.

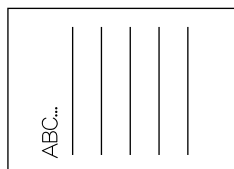
Setting direction toward paper feed port = Long side

Transfer direction

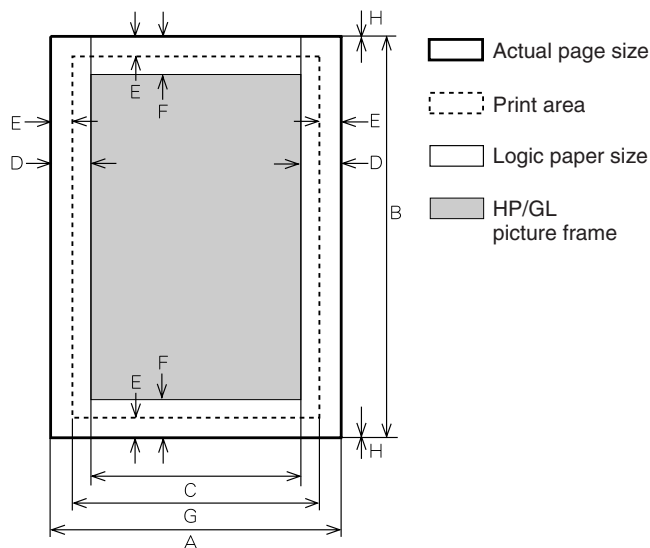


Setting direction toward paper feed port = Short side

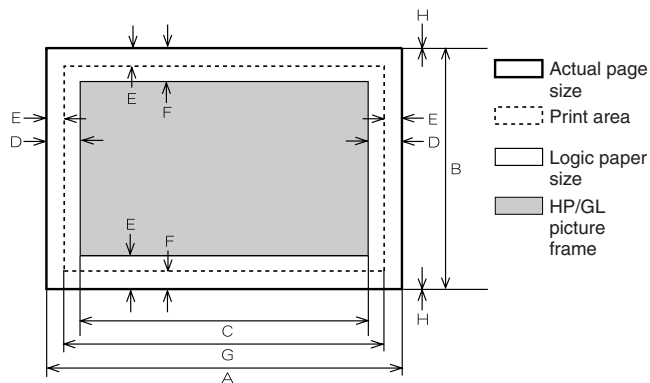
Transfer direction



E. Print enable area



Paper Size	A	B	C	D	E	F	G	H
A3	7014	9920	6730	142	100	300	6814	0
B4	6070	8597	5786	142	100	300	5870	0
A4	4960	7014	4676	142	100	300	4760	0
B5	4298	6070	5770	142	100	300	4098	0
A5	3508	4960	3224	142	100	300	3308	0
Ledger	6600	10200	6300	150	100	300	6400	0
Legal	5100	8400	4800	150	100	300	4900	0
Letter	5100	6600	4800	150	100	300	4900	0
Invoice	3300	5100	3000	150	100	300	3100	0
Foolscap	5100	7800	4800	150	100	300	4900	0
Folio	4980	7800	4680	150	100	300	4780	0
Executive	4350	6300	4050	150	100	300	4150	0
COM-10	2474	5700	2174	150	100	300	2274	0
C5	3826	5408	3542	142	100	300	3626	0
DL	2598	5196	2314	142	100	300	2398	0



Paper Size	A	B	C	D	E	F	G	H
A3	9920	7014	9684	118	100	300	9720	0
B4	8597	6070	8361	118	100	300	8397	0
A4	7014	4960	6778	118	100	300	6814	0
B5	6070	4298	5830	118	100	300	5870	0
A5	4960	3508	4720	118	100	300	4760	0
Ledger	8400	5100	8160	120	100	300	8200	0
Legal	8400	5100	8160	120	100	300	8200	0
Letter	6600	5100	6360	120	100	300	6400	0
Invoice	5100	3300	2860	120	100	300	4900	0
Foolscap	7800	5100	7560	120	100	300	7600	0
Folio	7800	4980	7560	120	100	300	7600	0
Executive	6300	4350	6060	120	100	300	6100	0
COM-10	5700	2474	3460	120	100	300	5500	0
C5	5408	3826	5172	118	100	300	5208	0
DL	5196	2598	4960	118	100	300	4996	0

* Top margin

The set value is received from the digital copier, and data are made according to the set value.

* Left margin

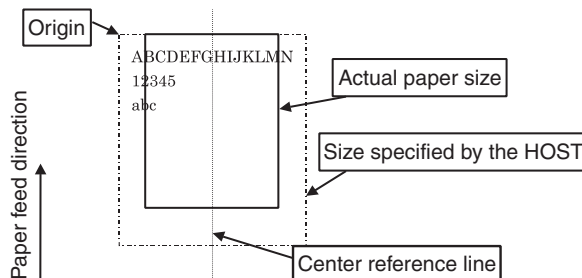
Since the paper size sensor is not set, the digital copier cannot recognize the size and direction of paper which is actually inserted.

Therefore, the left margin is set according to the paper size specified in the print data sent from the computer, and print process is performed. If the computer does not specify the paper size, or in the case of the custom size, the left margin is set according to the default paper size.

F. Print reference

This machine employs the center reference system.

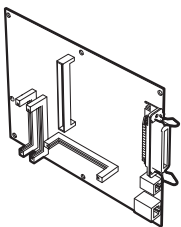



Since the digital copier is not provided with the tray size detection feature, formatting and center distribution are performed not by the actual paper size but by the paper size specified by the computer.



[3] INSTALLATION

1. AR-P17

A. Parts included

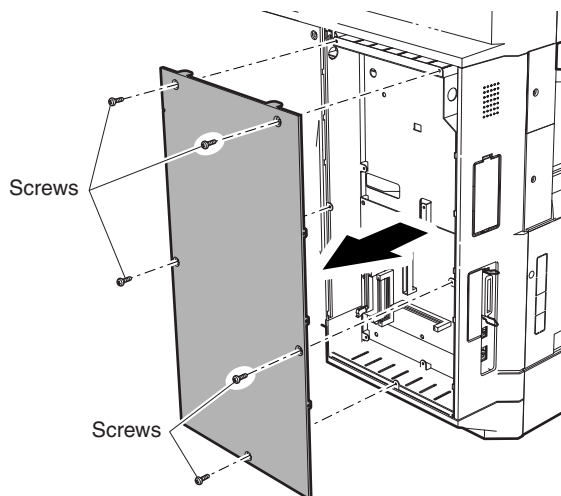
		CD-ROM: 1 pc. Operation manual Installation caution sheet
PCL PWB: 1 pc.		
		
M3 screws: 3 pcs. (For installation of the parallel and the USB connectors)	M3 screws with spring washer: 6 pcs. (For installation of the PCL PWB)	Support post: 2 pcs.

B. Installation procedure

Turn off the main switch of the copier and then remove the power plug of the copier from the outlet.

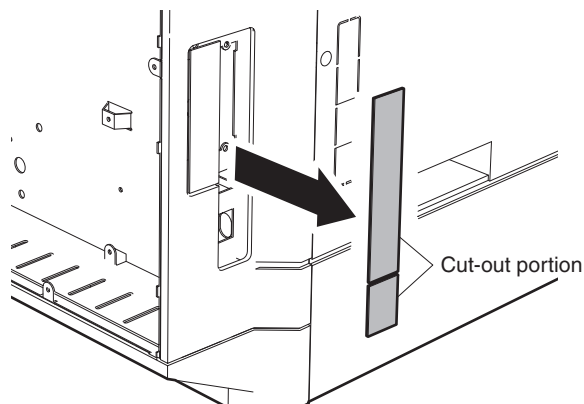
1) Remove the shielding plate.

Remove five screws and remove the shielding plate.



2) Cut and remove the cut-out portion from the left rear cabinet.

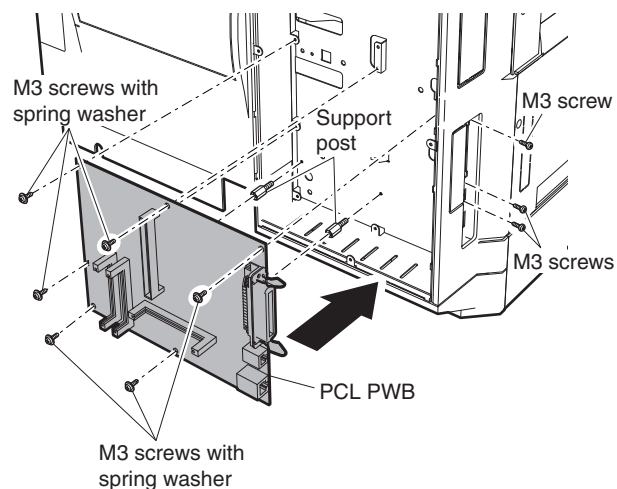
Cut and remove the cut-out portion from the left rear cabinet using a tool such as nippers. (Be careful about the direction of the tool so that the cut surface is flat.)



3) Attach the PCL PWB unit.

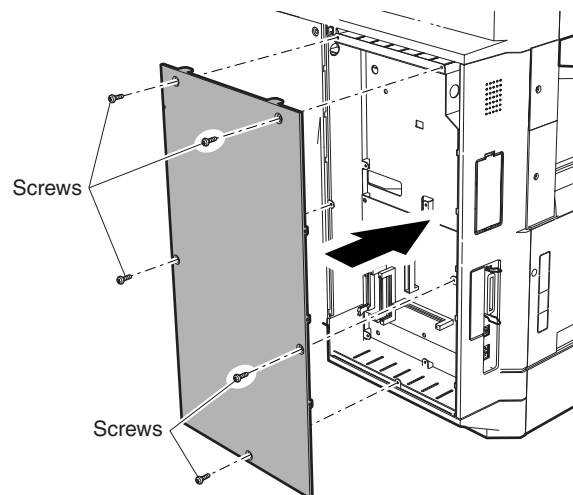
Attach the support post to the mounting plate of machine options. Then connect the PCL PWB connector to the mother board connector and fit the PCL PWB with the six screws with M3 spring washer (packed with the unit).

Then, attach the parallel and USB connector portion using the supplied three screws.



4) Attach the shielding plate.

Attach the shielding plate using five screws.



Insert the power plug of the copier to the outlet and turn on the main switch. Then, carry out the following procedure.

5) Check for the PCL PWB.

Press the PRINT key on the operation panel to check to see if the copier enters the print mode.

6) Check for the language.

Check for the language setting (26-22) following the procedure described in the service manual (section of simulation).

7) Check for printing.

For installation of printer drivers on a computer, see the supplied operation manual.

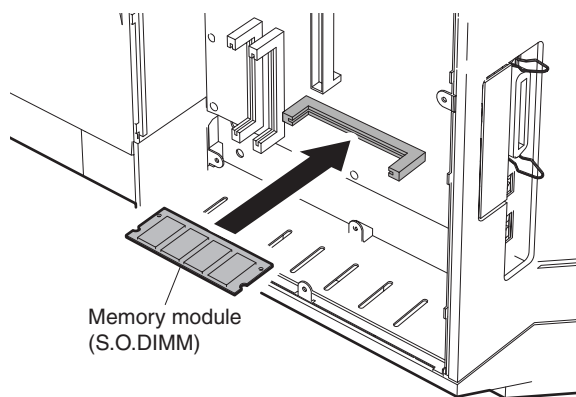
Then, connect a parallel cable to the computer and execute printing to check to see if printing can be executed properly.

C. Mounting of additional memory

(After mounting it, Installation proceed to step 4.)

Insert the memory module until it clicks.

The memory module is lock when it is inserted. However, be sure to check that the module slit is engaged with the connector rib when it is inserted.



3) Check the PS3.

Make the following sequence of selections on the control panel.

- Press Special Functions , highlight Configuration and press OK.
- Use the up and down keys to highlight Test print menu and press OK.
- Use the up/down keys to highlight Configuration page and press OK.

A configuration page will be printed.

Check that the option memory capacity is 128 MB or more.

Check that the PS3 has been installed.

Please keep below important information.
This information will use for other products.

APPLICATION NUMBER	<input type="text"/>
MACHINE SERIAL NUMBER	<input type="text"/>
PRODUCT KEY	<input type="text"/>

2. AR-PK1

A. Parts included

CD-ROM: 1*
License agreement
Installation caution sheet

*NOTE: Do not use the CD-ROM packed in AR-PK1, but use the CD-ROM packed together with the AR-P17 for setting the PS driver.

B. Installation procedure

To enable the PS3, the product key must be acquired.

(For the method of acquiring the product key, contact the SHARP authorized dealer.)

1) Check that AR-P17 operates normally.

- Turn on the power and wait until warming up is complete.
- Press the PRINT key on the operation panel of the main unit.
- If the LCD in the operation panel of the main unit switches to the print mode normally, AR-P17 is operating normally.
- If it is not operating normally, follow the AR-P17 Installation Manual to check and modify the system configuration settings and check the operation.

2) Enable the PS3.

To enable the system configuration, use the keys on the main unit to set the mode.

Enter the product key with the key operator program. (Refer to the Operation Manual of Key Operator Program.)

Setting of the product key is complete. To update the system, press the CA key to exit the setting mode.

[4] SETTING AND ADJUSTMENTS

1. Printer condition settings

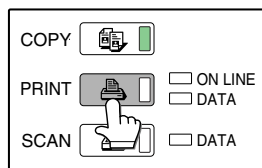
A. List

Item	Default
Default settings	
Toner save	OFF
Copies	1
Orientation	Portrait
Default paper size	AB series: A4 Inch series: 8 1/2 x 11
Default paper source	Auto
Default paper type	Auto
Smoothing	OFF
Resolution	600dpi
Extra print mode	OFF
2-sided print	1-sided
Page protection	ON
ROPm	OFF
PCL settings	
PCL symbol set setting	3 (PC-8)
PCL font setting	Internal font: 0 (courier)
Line feed code	0
Wide A4	OFF
PostScript settings*	
Print PS errors	OFF

* Displayed when installing the PS expansion kit (AR-PK1).

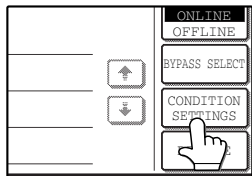
B. Operating procedure

- Press the [PRINT] key.
The basic menu of the printer mode is displayed.

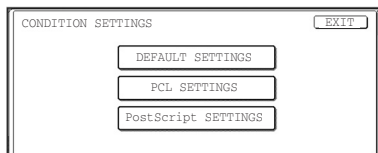


- Touch the [CONDITION SETTINGS] key.

Any print jobs that have already been sent to the machine, including print hold jobs stored in the machine, will be printed using the printer condition settings that were effect when the job was sent.

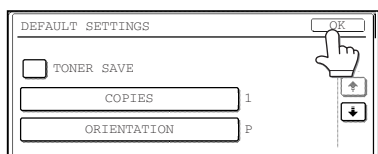


- Touch the target item to display the setting menu.

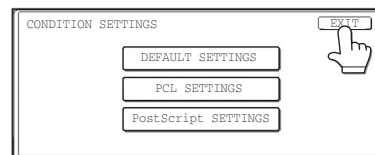


- On the setting menu of the target item, set the desired set value and touch the [OK] key.

To set another item continuously, repeat procedures 3) and 4).



- To terminate setting, touch the [END] key.



C. Setting item

Default settings

Item	Set value (*: Default value)	Description
Toner save	ON, OFF*	Sets whether toner save mode is in effect or not. Toner is saved by printing a little lighter. When the resolution is 1200dpi, toner save does not function.
Copies	1* – 999	Sets how many copies to print.
Orientation	Portrait*, Landscape	Sets the page orientation for printing. Specify "PORTRAIT" to print the paper with its long side (longer edge) vertical. Specify "LANDSCAPE" to print the paper with its long side (longer edge) horizontal.
Default paper size	5 1/2 x 8 1/2, 8 1/2 x11*, 8 1/2 x 13, 8 1/2 x 14, 11 x 17, A5, B5, A4*, B4, A3	Sets the size of the paper where data will be printed. If this size is different from the paper size present in the tray, the size set for this item takes precedence. * Depending on where the printer was purchased, the default value is either "A4" or "Letter".
Default paper source	AUTO*, BYPASS, BYPASS (AUTO) TRAY1, TRAY2, TRAY3, TRAY4	Sets the tray used for paper feeding. When set to "Auto," the tray loaded with the paper set by "Default paper size" is automatically selected. * Tray 3 and 4 (option) can be selected only when installed.
Default paper type	AUTO*, PLAIN, RECYLED, LETTER HEAD, COLOUR	Select the paper type to be used. When set to "Auto," the tray loaded with the paper set by "Default paper size" is automatically selected.
Smoothing	ON, OFF*	Sets whether smoothing is done or not. Angles and curves included in an image are smoothed to improve the image quality. If smoothing is set when the resolution is set to 600dpi, an image corresponding to 1200dpi is printed. (Printing at 1200dpi provides a higher print quality, but consumes a greater memory space, resulting in a low print speed. When the resolution is set to 1200dpi, smoothing cannot be selected.) To print a bitmap image, it is better not to select smoothing to have a better print quality.
Resolution	300dpi, 600dpi*, 1200dpi	Sets the printing resolution. When 1200dpi is selected, smoothing and toner save cannot be selected. Since 1200dpi printing consumes a large memory space, resulting in a low print speed.

Item	Set value (*: Default value)	Description
Extra print mode	ON, OFF*	This function is used to reduce wait time between print jobs and proceeds efficient print processes mainly when there are many single print jobs. Normally it is not used. When this function is set, multiple print jobs are processed as a single job when all of the jobs have the same print format. On the job status display, it is displayed with one job key. When printing is made with the print hold function, this function does not work. When the print type is changed such as when the paper size is changed, this function is terminated.
2-sided print	1-SIDED*, 2-SIDED (BOOK), 2-SIDED (TABLET)	When "2-SIDED (BOOK)" is selected, duplex print is made on the assumption that the left edge of paper is bound. When "2-SIDED (TABLET)" is selected, duplex print is made on the assumption that the top of paper is bound.
Page protection	ON*, OFF	Sets page protection. Page protection is a function designed to prevent data loss errors when complex data is printed.
ROPm	ON, OFF*	Sets whether the ROPm function is enabled. If the ROPm function is enabled, print data will be stored in the printer memory once for printing onto multiple sheets. This function can reduce transmission quantity between the printer and your computer.

PCL settings

Item	Set value (*: Default value)	Description
PCL symbol set setting	1 – 35 (3*)	Specify the PCL symbol set. The number of the PCL symbol set can be checked by printing [PCL symbol set list] in [list print] of CUSTOM SETTING.
PCL font setting	Internal font (0* – 80), extended font (1 –)	The PCL font to be used for printing can be specified. One type of font can be selected from the internal fonts or the expansion fonts (bar code font kit or flash ROM kit). The default is "0" (Internal font: Courier). The types of available fonts can be checked by printing the font list in the [list print] of the [CUSTOM SETTING]. The font list includes the font names, the numbers and print out sample assigned to the fonts. In this setting, the number assigned to the font to be used is set.
Line feed code	0* – 3	The line feed code is set by combination of "CR" (Carriage Return) code, "LF" (Line Feed) code, and "FF" (Form Feed) code. The default is set so that printing is made by the sent code. To change the setting, there are four kinds of combination to select.

Item	Set value (*: Default value)	Description
Wide A4	ON, OFF*	When this item is set, 80 digits of 10CPI font can be printed in one line on A4 size paper. When setting is canceled, the print digit number in one line becomes 78 characters.

PostScript settings

"PS setting" is allowed only when the PS expansion kit is installed.

Item	Set value (*: Default value)	Description
Print PS errors	ON, OFF*	When it is set, if a PostScript error occurs, the error content is printed.

2. AR-PK1 (PS expansion kit) setup

A. Setup content

- The soft key is supplied by registering the manufacturing number and the model name of the machine and the application number attached to the PS expansion kit via the Web site. Enter the soft key to the machine, and the PS3 function can be operated. If, however, the setup enable conditions are not satisfied, inputs are disabled.
- When the soft key is erroneously inputted:
When the function lock is canceled: the function lock turns to work.
When the function lock is working: the function lock is kept working.

B. Setup enable conditions

- The printer expansion kit (including the standard equipment) should be installed.
- The Japanese font ROM should be installed to the printer board. (Japan only)
- The printer function should be provided as standard provision.

C. Setup menu

Enter the soft key the machine from "KEY OPERATOR MENU".

D. Function cancel menu

- When the diag menu or the key operator program menu is displayed, the current machine state (the key is canceled or not) is displayed.
- Display content
ON: The function lock is working.
OFF: The function lock is canceled.
- Regardless of the display position

3. Email alert status

A. Setup contents

- The soft key is supplied by registering the manufacturing number and the model name of the machine and the fixed application number via the Web site. Enter the soft key to the machine, and the email alert and status function can be operated. If, however, the setup enable conditions are not satisfied, inputs are disabled.
- When the soft key is erroneously inputted:
When the function lock is canceled: the function lock turns to work.
When the function lock is working: the function lock is kept working.

B. Setup enable conditions

- The printer expansion kit (including the standard equipment) should be installed.
- The network card kit (NIC) should be installed.

C. Setup menu

Enter the soft key the machine from "KEY OPERATOR MENU".

D. Function cancel display

- When the diag menu or the key operator program menu is displayed, the current machine state (the key is canceled or not) is displayed.
- Display content
ON: The function lock is working.
OFF: The function lock is canceled.
- Regardless of the display position

4. Key operator program list

Key operator programs			Set value (*: Default value)	Remarks
Print settings				
Default settings	Prohibit notice page printing		ON / OFF*	
	Print density level		1 / 2 / 3* / 4 / 5	
	Prohibit test page printing		ON / OFF*	
	Rotated print		ON* / OFF	
	Forced output of print		ON / OFF*	
	Exclude bypass-tray from ATS		ON* / OFF	
	Disable default setting changes		ON / OFF*	
Interface settings	Hexadecimal dump mode		ON / OFF*	
	I/O timeout		1 – 999 (Increment of 1sec.) 60 (sec.)*	
	Parallel port emulation switching		Auto* / PostScript (When the PS3 expansion kit is installed.) / PCL	
	USB port emulation switching		Auto* / PostScript (When the PS3 expansion kit is installed.) / PCL	
	Network port emulation switching		Auto* / PostScript (When the PS3 expansion kit is installed.) / PCL	
	Port switching method		Switch at end of job* / Switch after I/O timeout	
	Enable parallel port		ON* / OFF	
	Enable USB port		ON* / OFF	
	Enable network port		ON* / OFF	
	Enable ECP		ON / OFF*	
Network settings (When the print server card installed.)	IP address setting	DHCP	ON* / OFF	To enable the changed setup, the power must be rebooted. *1) Displayed when the AR-NC5J is installed. Not displayed when only the AR-P17 is installed.
		IP address	ON* / OFF	
		IP subnet mask	ON* / OFF	
		IP gate way	ON* / OFF	
	Enable TCP/IP *1)		ON* / OFF	
	Enable NetWare *1)		ON* / OFF	
	Enable EtherTalk *1)		ON* / OFF	
	Enable NetBEUI *1)		ON* / OFF	
Initialise and/or store settings	Reset the NIC		—	
	Restore factory default		—	
	Store current configuration		—	
	Restore configuration		—	To enable the changed setup, the power must be rebooted.

[5] SIMULATION

1. Operating procedures and operations

* Entering the simulation mode

- 1) #/P key (program) ON → Asterisk (*) key ON → CLEAR key ON → Asterisk (*) key ON → Ready for input of a main code of simulation
- 2) Entering a main code with the 10-key → START key ON
- 3) Entering a sub code with the 10-key → START key ON
- 4) Select an item with the scroll key and the item key.
- 5) The machine enters the mode corresponding to the selected item.
Press START key to start the simulation operation.
To cancel the current simulation mode or to change the main code and the sub code, press the CUSTOM SETTINGS key.

* Canceling the simulation mode to return to the normal mode

- 1) Press CLEAR ALL key.

2. Simulation code list

Code		Function
Main	Sub	
22	1	Used to check the counter value of each section.
24	9	Used to clear the printer counter and other counters. (The counter is cleared after completion of maintenance.)
67	14	Used to check write/comparison of flash programs.

3. Details

22

22-1

Purpose	Adjustment/setting/operation data output/check (display/print)
Function (Purpose)	Used to check the counter value of each section.
Item	Counter

Operation/procedure

Each counter is displayed.

TOTAL	Total
MAINTENANCE	Maintenance
DEVE	Developer counter *1
DRUM	Drum counter
COPY	Copy counter
PRINTER	Printer counter
IMC	IMC counter
DUPLEX	Duplex counter
OTHERS	The other counters
FAX SEND	FAX Send counter
FAX RCV	FAX receive counter
FAX OUTPUT	FAX print counter

The counter display is in 7 digits.

SIMULATION 22-1

COUNTER DATA DISPLAY.

```
TOTAL      : 0000000  MAINTENANCE : 0000000
DEVE       : 0000000  DRUM         : 0000000
COPY       : 0000000  PRINTER      : 0000000
IMC        : 0000000  DUPLEX       : 0000000
OTHERS     : 0000000  FAX SEND     : 0000000
FAX RCV    : 0000000  FAX OUTPUT   : 0000000
```

24-9

Purpose	Data clear	
Function (Purpose)	Used to clear the printer counter and other counters. (The counter is cleared after completion of maintenance.)	
Section	Printer	
Item	Counter	Printer

Operation/procedure

1. Select the counter to be cleared with the 10-key.
2. Press the [START] key.
The confirmation menu is shown.
3. Select "1: YES."
1: YES (Cleared)
2: NO (Not cleared) (Default)

Item	Content
1 PRINTER	Printer counter
2 IMC	IMC counter
3 DUPLEX	DUPLEX counter
4 OTHERS	The other counters

SIMULATION 24-9

PRINTER/OTHERS COUNTER DATA CLEAR. SELECT 1-4, AND PRESS START.

1:PRINTER 2:IMC 3:DUPLEX 4:OTHERS

2

67-14

Purpose	Flash ROM version up
Function (Purpose)	Used to check write/comparison of flash programs.
Section	Printer
Item	Operation

Operation/procedure

1. Press the [START] key.
"PLEASE SEND DATA" is displayed.
2. Data are sent from the PC (MS-DOS) by use of "fcopy" command (FCOPY: file name). (Refer the "[7] FLASH ROM VERSION UP PROCEDURE")
Used to overwrite and check the flash device while displaying its process status.
After completion, the result is displayed.
3. Press the [CA] key to cancel the simulation and reset.

(Flash Device)
PROGRAM
BOOTROM
PS KANJI FONT
ESC/P KANJI FONT
OPTION FONT

(Processing state)
RECEIVE
ERASE
WRITE
VERIFY

* Execution of the simulation which performs communication with the PCL board is inhibited until Notice Page storage is completed. (Only when the serviceman call error occurs.)

In the other case than the serviceman call error, entering the simulation is inhibited during the system check operation is displayed.

SIMULATION 67-14

FLASH ROM PROGRAM WRITE CHECK/COMPARE CHECK.
PRESS START.

[6] CONFIGURATION REPORT AND TEST PAGE

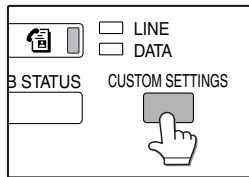
1. Kinds of test pages

Test pages are available in the following 6 kinds:

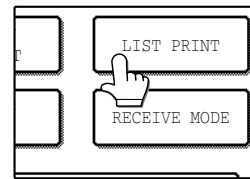
- Printer settings list
- PCL symbol set list
- PCL internal font list
- PCL extended font list (Only when an option font or an option Flash ROM kit is installed. When a Flash ROM kit is installed, it is displayed only when fonts are downloaded.)
- PCL internal font list (With PS installed)
- PS extended font list (Displayed only when PS is installed, an option Flash ROM is installed, and fonts are downloaded.)
- NIC page

2. Print method

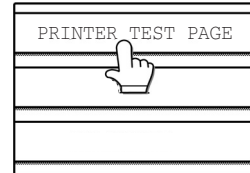
- 1) Press the [CUSTOM SETTINGS] key.



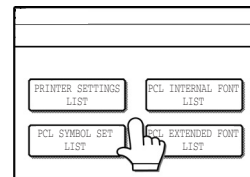
- 2) Touch the [LIST PRINT] key.



- 3) Touch the [PRINTER TEST PAGE] key.



- 4) Touch the list key to be printed.



* It is printed by priority even when there is a job waiting for printing.

[7] FLASH ROM VERSION UP PROCEDURE

(Necessary items for version-up)

- A Personal computer
- B Centro (printer) cable
- C Software for version-up

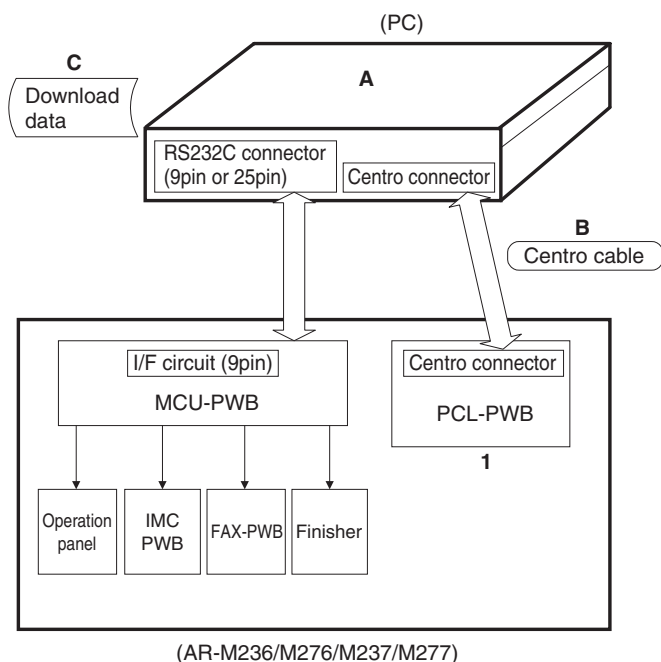
(ROM type)

The flash ROM is directly installed to each PWB.

(Target PWB)

- 1 PCL PWB

Outline of Version-up Procedure



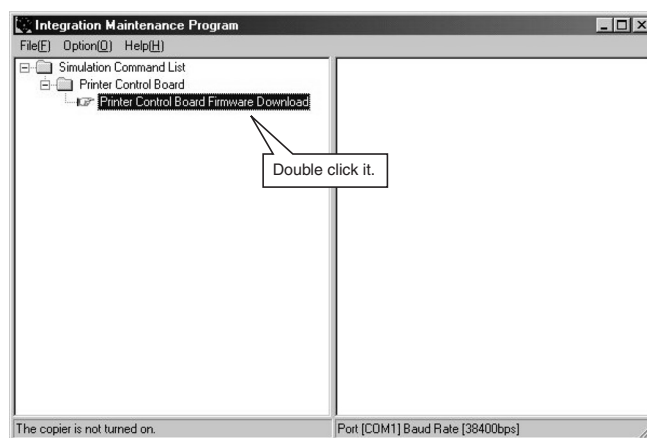
Prepare following files necessary for program download

- Maintenance software: maintenance.exe
- Andromeda module file: ProcModelC.mdl (for AR-M236/M276/M237/M277 series)

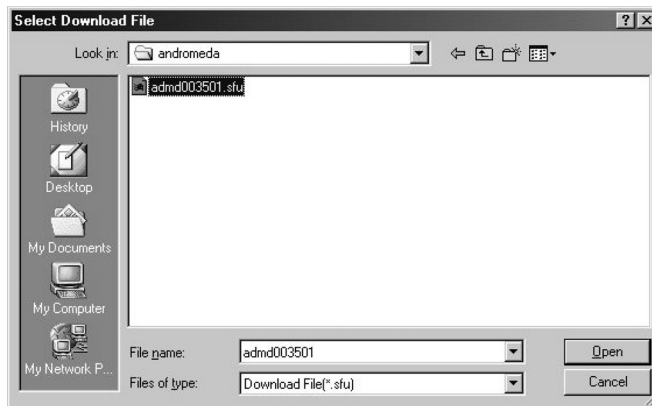
1. Printer Control Board firmware download method

Please follow the procedure below:

- 1) Make sure copier is turned off, and connect PC and Printer Control board of the copier by parallel cable beforehand.
- * Note: It is okay to use serial cable instead.
- 2) Turn on the copier.
- 3) Start up in copier test command mode, and execute Sim67-14 "FLASHDOWNLOAD".
- 4) And then, press OK key when notice message "PRESS OK KEY" appears on the panel. Another message "Please Send Data" will appear after a while.
- 5) Start up the maintenance program on PC. Select model name "AR-M236/M276/M237/M277 Series" from the model selection dialogue box.
- 6) Expand "Printer Control Board", and double-click on "Printer Control Board Firmware Download".



- 7) Dialog box will appear to select download file.



- 8) Select Download file(*.sfu) and press "Open" button.
- 9) Download procedure will starts automatically.
- 10) Notice message "Data Send Complete" will appear on PC.
- 11) Notice message "Download is complete. Check the copier panel to make sure the download is complete." will appear on PC.
- 12) Close maintenance program, and reset the machine by pressing CA key.

This is the end of the download procedure.

2. Others (Troubleshooting)

Followings are the error possibly occur during the download process and troubleshooting method.

No	Warning/error message	Detail
1	Incorrect destination. Continue with the download process?	Destination of download file and copier doesn't match. Possible to select either continue or cancel the job.
		[TROUBLESHOOTING] To change destination, select "Yes". If not, select "No" and cancel download process.
2	Incorrect download file.	Invalid download file for the machine is selected, or the file format is not correct.
		[TROUBLESHOOTING] Confirm the download file. Possibly the improper download file is selected.
3	No downloadable data included.	Unable to find appropriate data in selected download file.
		[TROUBLESHOOTING] Confirm the download file. Possibly the improper download file is selected.
4	This option not available.	Download procedure is executed on uninstalled optional kit.
		[TROUBLESHOOTING] Confirm installed optional kit.
		Confirm the download file. Possibly the improper download file is selected.
5	The data size exceeds the Flash ROM size. Try again with the appropriate size of data.	Panel flash ROM size is not enough to execute download procedure.
		[TROUBLESHOOTING] Confirm the download file. Possibly the improper download file is selected. Exchange the flash ROM to the one which has more capacity.
6	Time out error.	Transmission error Unable to receive data from the machine among the certain period of time.
		[TROUBLESHOOTING] Restart maintenance program after confirming communication port or communication cable.
7	Communication (incoming) error.	Incorrect download procedure. The machine did not proceed download procedure correctly.
		[TROUBLESHOOTING] Restart maintenance program after confirming communication port or communication cable. Make sure the communication device of PC(either COM or parallel) is under right condition.
8	Checksum error.	Transmission error The check sum value of the transmission data is mismatch.
		[TROUBLESHOOTING] Restart maintenance program after confirming communication device of PC (either COM or parallel) is under right condition.
9	Error during the download process. Error code: 0XXXXXXXXX	Download data file operation error.
		[TROUBLESHOOTING] Restart maintenance program after confirming the selected download file is not abnormal and not using other application.
10	An error. [0XXXXXXXXX]	The error occurred except the above errors.
		[TROUBLESHOOTING] Restart maintenance program after confirming communication device of PC(either COM or parallel) is under right condition.

[8] PRINTER STATUS MONITOR/PRINTER ADMINISTRATION UTILITY

1. Printer status monitor

A. Purpose

- Is printing enabled or disabled?
- Is toner sufficiently supplied?
- Is paper sufficiently supplied?
- Is duplex print enable?
- Is the previous printing completed?

This application provides easy and simple view of the above items.

B. Operating environment

Windows95, Windows98, WindowsMe, WindowsNT4.0 Workstation (SP3 or later), Windows2000 Professional, Windows XP Home Edition Professional TCP/IP necessary

C. V3.1 limitations and notes

(1) Requisites of printer to be monitored

- The printer driver should have been installed. (Necessary)
 - The driver should allow peer-to-peer printing.
For the AR-M237/M277/M236/M276 series, the SC-Print2000 (Windows 95/98/Me) should be installed, and the "Print destination port" of the printer should be set to TCP/IP port,
- or
- In the case where the driver is shared with the printer server, the printer should be connected with TCP/IP. In this case, monitoring is allowed after printing once.

(2) Install and uninstall

In the case of WindowsNT/2000/XP, the administrator authority is required for install and uninstall.

(3) Status display when in the auto power shut off

The status information when the printer is in the "Auto power shut off" mode is the status information immediately before entering the "Auto power shut off mode.

D. Outline of functions

(1) Status display

Simple view: For beginners

Detailed view: For experts

Simple/Detailed selection allowed

(2) Status change notification

Device status when the machine is sending a job

Print enable

Print disable

Paper jam

Toner empty

Toner Low

Printer Warning

Paper Empty

Cover open

Off-line

Printer error (Service call)

Output Tray Full

Notifying method:

Status window pop-up

Tip pop-up

Sound

(3) Selection of printer to be monitored

The printer to be monitored can be switched by the following two ways.

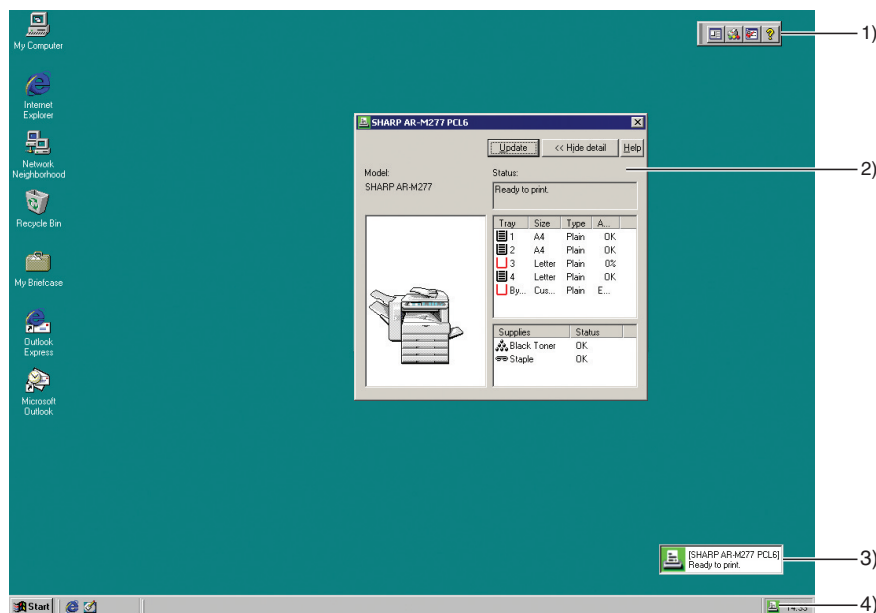
- Switch by the printer menu
- Switch by the setting dialog

(4) Job complete notification

Status of the job which was sent by the machine

Print complete

Temporary interruption of print by an error



1) Tool bar

Displays the status window, revises the display to the latest state, makes setups, and displays Help.

2) Status window

Displays the printer status.

Selection of Simple/Detailed view is allowed.

Pop-up to indicate a change in the status is also allowed by setup.

3) Tip

Turns on for a certain time (when setting) when the status changes.

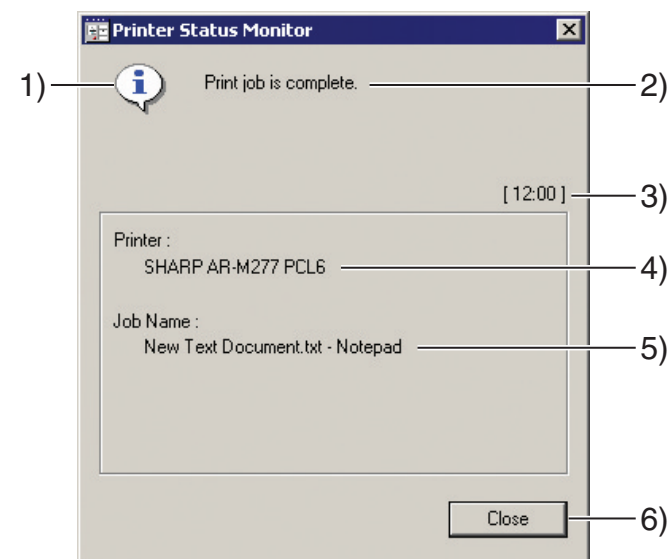
4) Task tray icon

Memory-resident. Displays the printer status which is monitored.

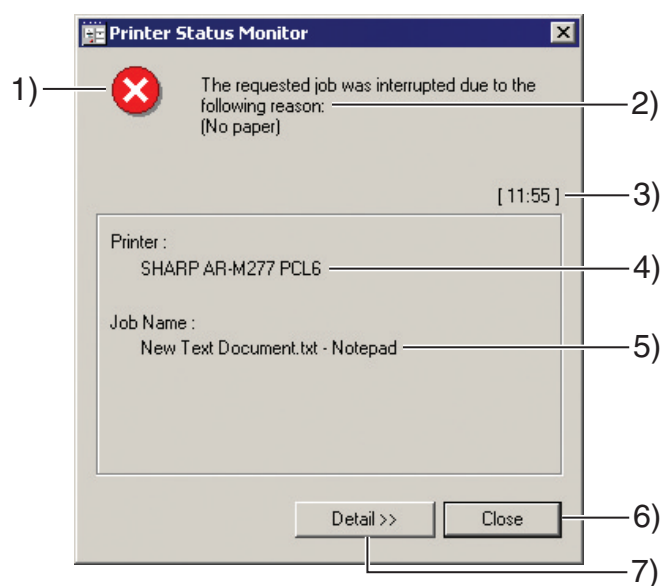
(6) Job complete notification

When a print job is completed (or interrupted by an error), a notification from the printer is received and displayed.

The dialog pop-up shows the notification.

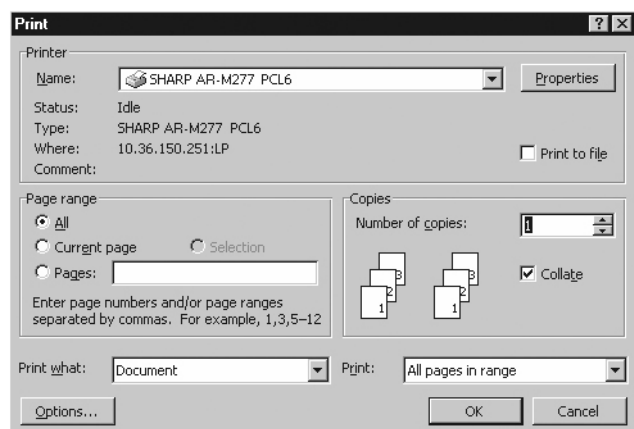


- 1) "Normal" icon
- 2) Message
- 3) Notifying time
- 4) Printer driver name
- 5) Job name
- 6) "CLOSE" button



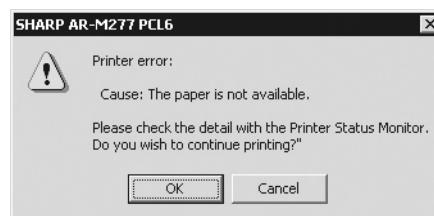
- 1) "Error" icon
- 2) Message
- 3) Notifying time
- 4) Printer driver name
- 5) Job name
- 6) "CLOSE" button
- 7) "DETAIL" button

(7) Status advice immediately before printing (23-page machine/27-page machine)



The status is checked when printing is performed.

If any trouble occurs



The dialog to select Continue or Cancel printing is displayed.

2. Printer administration utility

A. Purpose

This application provides easy and simple view of the following items:

- What kinds of network printers are connected in the network?
- Are the network printers operating normally?
- What functions does the printer have?

B. Operating environment

Windows 95, Windows 98, Windows Me, Windows NT4.0 Workstation (SP3 or later)/2000 Professional, Windows XP Home Edition Professional TCP/IP, Winsock2 necessary

C. Outline of functions

(1) Network printer retrieval/list display

- Retrieval and list display of the network printers which conform to the Printer MIB (RFC1759) specifications.
- Printer status display by the color of the icon
 - Normal state (No color)
 - On-line
 - Warning state (Yellow)
 - Paper low, toner near empty, printer warning
 - Error state (Red)
 - Paper empty, cover open, toner empty, paper jam, printer error, Specified output tray full
- List display filter function

(2) Alert/log function

- Alert by the pop-up/sound when the printer status changes.
- Making of the alert/log file

(3) Printer property display

- Device information
Model name, status, name, installing place, RAM size, max. print speed, etc.
- Paper exit tray information
Tray name, number of trays, paper empty/presence of each tray, paper exit method, printing sequence, etc.
- Paper feed tray information
Number of trays, tray name, paper empty/presence of each tray, paper size etc,
- Print setup
Channel & PDL information, default PDL, paper direction, single/duplex print information
- Resource information
Print quantity, toner status
- Summary information
Information on the system and network
- SHARP NIC information
NetWare setup, IP address, hardware address, etc.

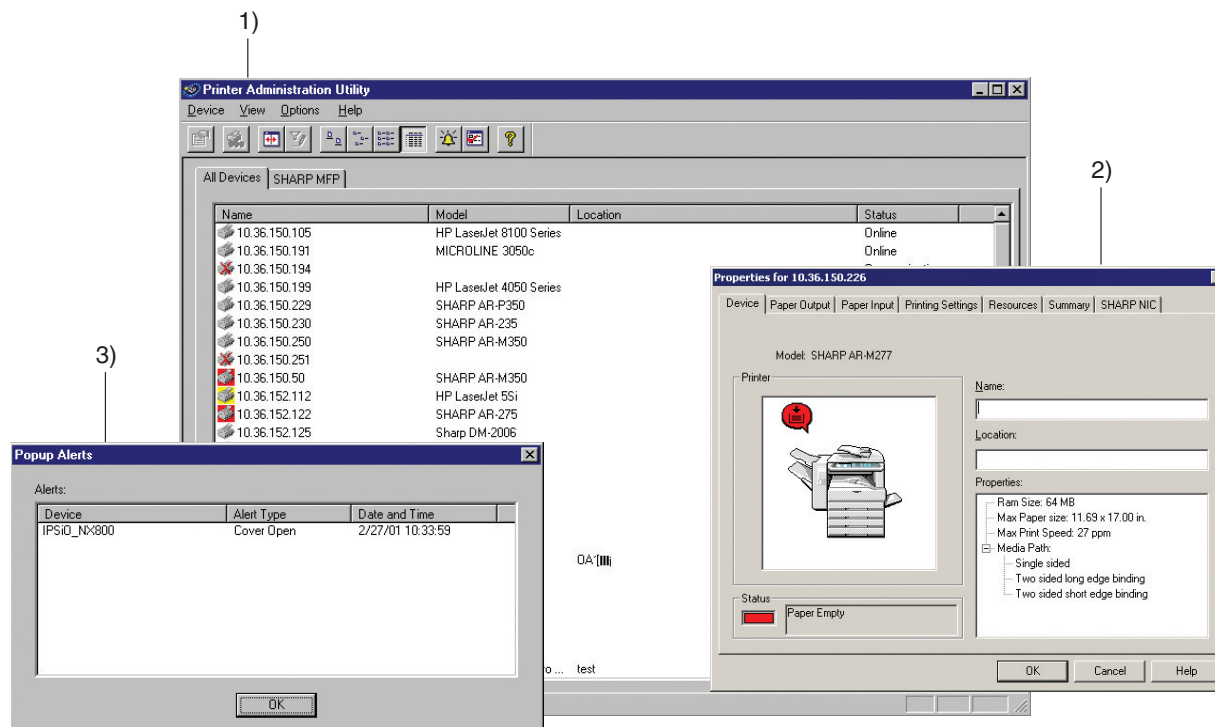
D. Note

(1) Install and uninstall

For NT/2000/XP, the administrator authority is required.

(2) Status display when auto power shut off

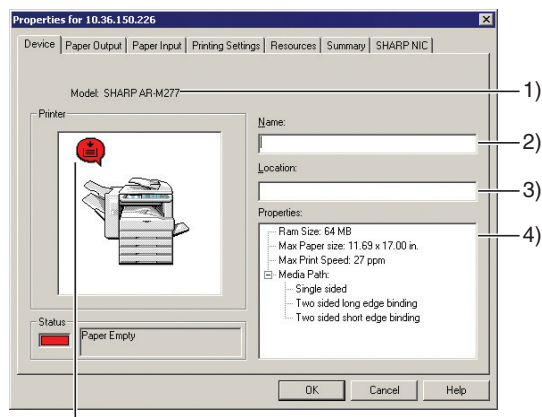
- The various information when the printer is in the "Auto power shut off" mode is information immediately before entering the "Auto power shut off mode.



- 1) Main window
List display of network printers.
The status of a printer is indicated by the color of the icon.
- 2) Printer property page
Detailed information (on the functions and status) of a printer is displayed.
- 3) Pop-up alert
The pop-up-alert can be displayed by the setup when the printer status changes.

Printer property page (Select a printer from the list and double click it to display this page.)

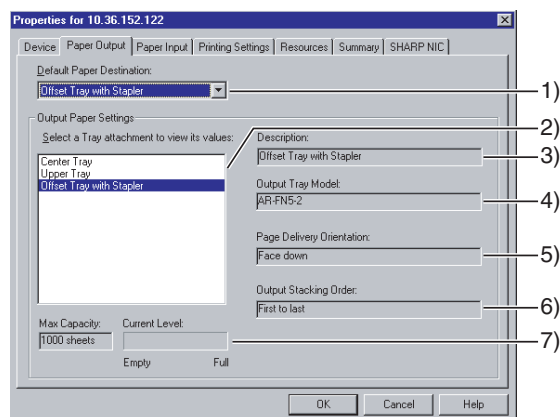
[Device tab]



	Toner Low		Toner Empty
	Offline		Paper Jam
	Paper Empty		Printer Error
	Cover Open		Printer Warning
	Specified Output Tray Full		

- 1) Model
- 2) Name: Can be set.
- 3) Installing place: Can be set.
- 4) Property:
 - RM size
 - Max. paper size
 - Max. print speed
 - Paper path

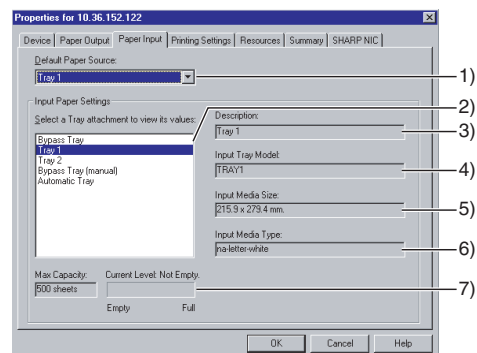
[Paper exit tab]



- 1) Paper exit tray for normal use: If the driver does not specify any paper exit tray, the printer uses this tray. No change allowed for some models.
- 2) List of paper output trays:
- 3) Description: = Tray name
- 4) Model name: (Not set in some models.)
- 5) Paper exit method: Face-up or face-down
- 6) Printing sequence: "First To Last" or "Last To First"
- 7) Max. paper capacity: The paper presence is detected and displayed only when the job separator is installed.

Information on the tray selected from the list is displayed.

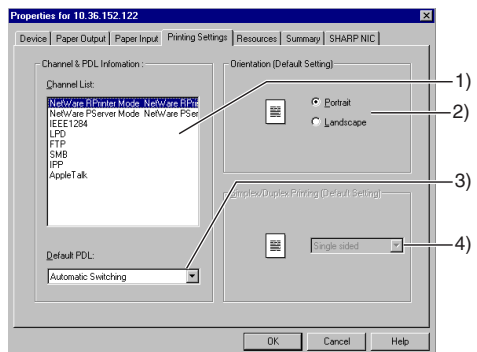
[Paper feed tab]



- 1) Paper feed tray for normal use: If the driver does not specify any paper feed tray, the printer uses this tray.
- 2) List of paper feed trays:
- 3) Description: = Tray name
- 4) Model name: (Not set in some models.)
- 5) Paper size: Length x width (mm)
- 6) Paper kind: Name defined by ISO/IEC 10175DPA
- 7) Max. paper capacity: AR-M230/M270 series detects the presence of paper only.

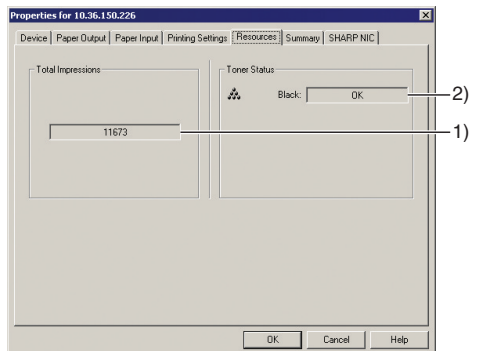
Information on the tray selected from the list is displayed.

[Print setup tab]



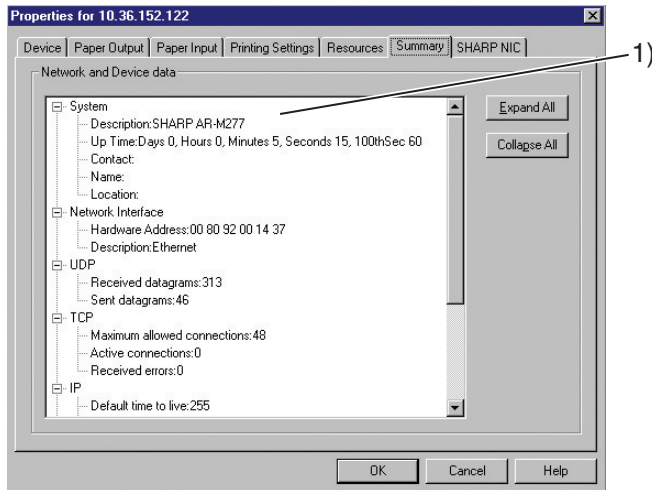
- 1) Channel list: List of the effective channels
- 2) Paper direction: If the driver does not specify the direction, the printer uses this direction for normal use. (No change allowed for some models.)
- 3) Default PDL: If the driver does not specify any PDL, the printer uses this PDL for normal use. (No change allowed for some models.)
- 4) Single/Duplex print: If the driver does not specify single/duplex print, the printer uses this print path for normal use. (No change allowed for some models.)

[Resource type]



- 1) Total Impressions: The quantity of printouts and outputs of copy and FAX.
- 2) Toner status: OK or toner empty or toner low. (Only toner empty or not is detected in some models.)

[Summary tab]



1) Network and device information:

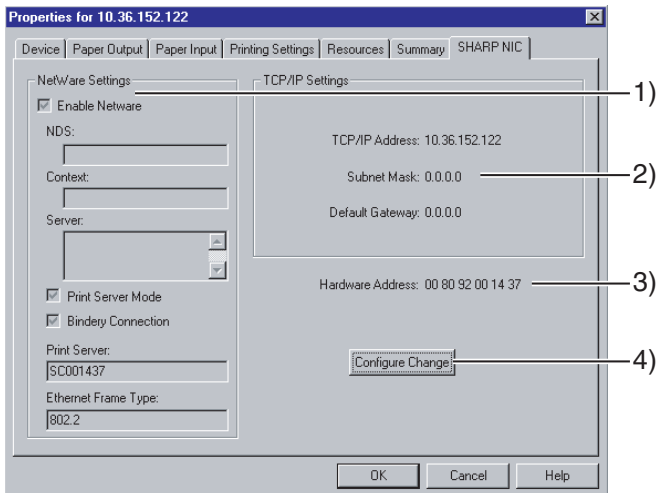
Device information

- Descriptions, operating time, etc.

Network information

- TCP, IP, the number of send/receive packet of SNMP

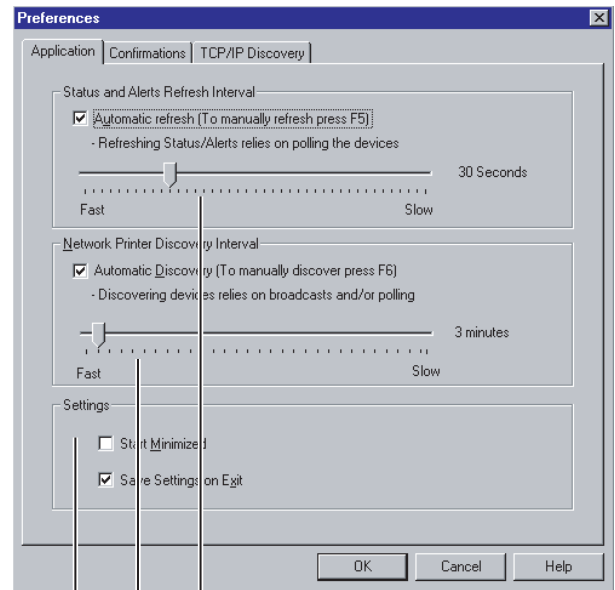
[SHARP NIC tab]



- 1) NetWare setup: Setup of NetWare enable/disable
If set to enable, setup and display and changes are made on the following items:
NDS mode or Bindery mode
NDS tree name, context name
Bindery server name
Print server name
Ethernet frame name
- 2) TCP/IP setup: TCP/IP address, sub-net mask, default gateway
- 3) Hardware address: Hardware address of the network card in the target printer.
- 4) Link to the device Web page (Provided only the models which have an assembly Web server.)

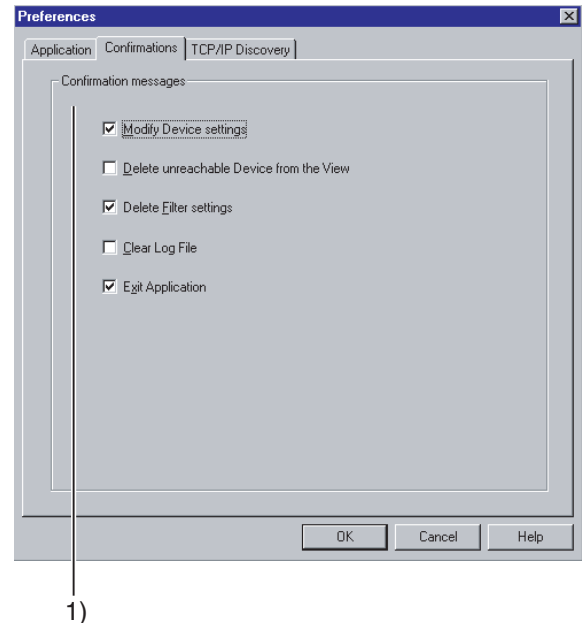
Setup

[Application]



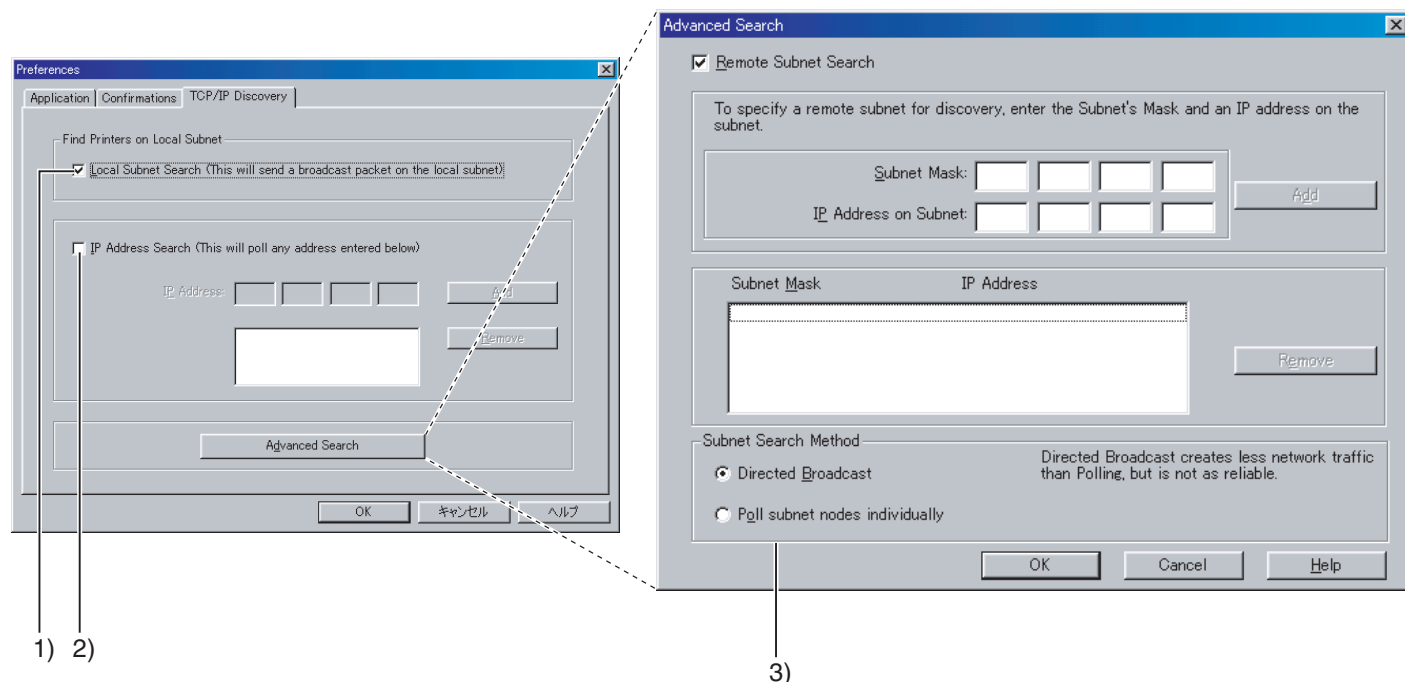
- 1) Setup: Used to set that the icon is minimized when booting or not, and that the setup content is stored when terminating or not.
- 2) Network printer retrieval interval: Used to set automatic retrieval of a printer on the network.
The printers to be retrieved can be set with the "Printer retrieval (TCP/IP)" tab.
The retrieval interval is 1min to 60min. The default is 3min.
- 3) State and alert revision interval:
Used to set automatic revision of the printer status.
The revision interval is 10sec to 90sec. The default is 30sec.

[Confirmation]



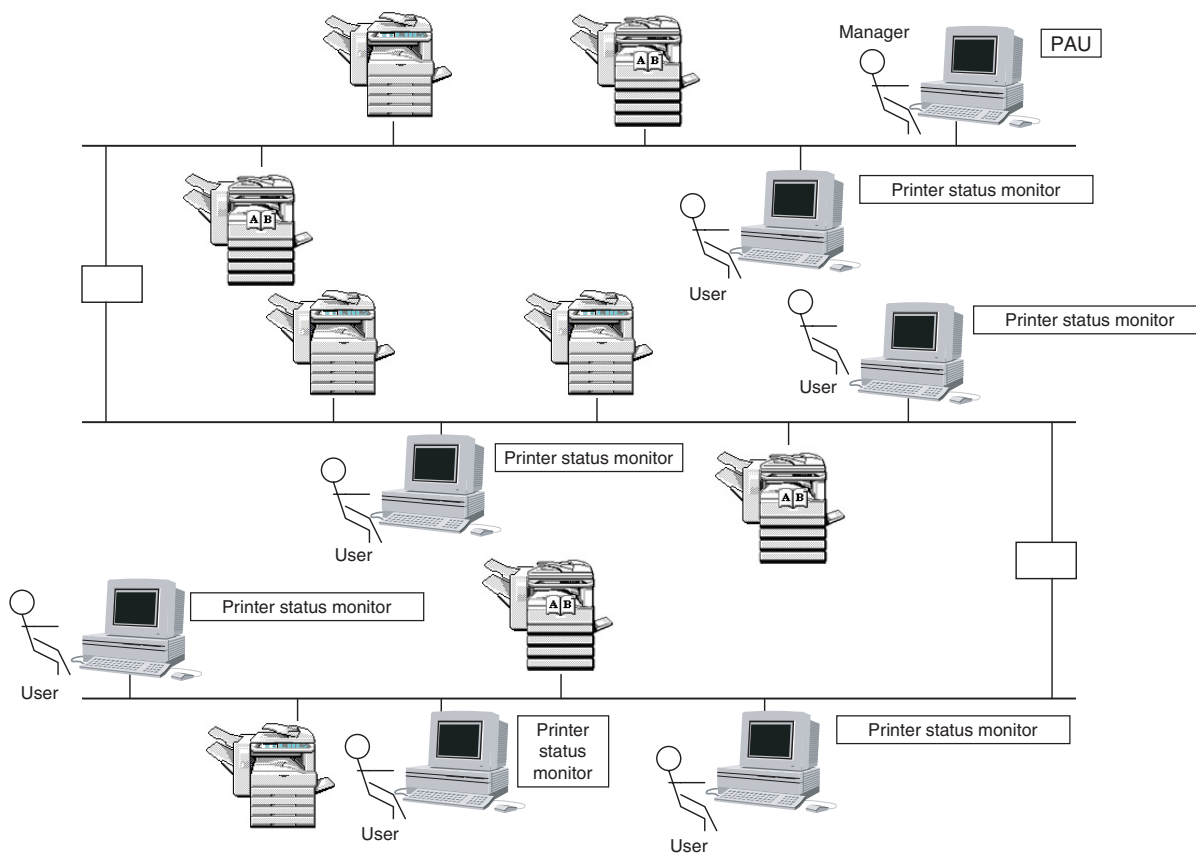
- 1) Confirmation message: Used to set that the confirmation pop-up menu is displayed when;
the device setup is changed.
the device is deleted,
the filter setup is deleted,
the log file is deleted,
the application is terminated.

[Printer retrieval (TCP/IP)]



- 1) Printer retrieval on the local network:
When this box is checked, the local network address is obtained from the IP address and the sub net mask of the PC where PAU is installed, and a printer on the local network is retrieved.
- 2) Retrieval by IP address:
A certain IP address can be obtained.
Only when this box is checked, the printers which have IP addresses listed on the list can be retrieved.
- 3) Advanced retrieval dialog box
Used to set the printer retrieval on an external network.
To specify an external network to be retrieved, enter the network address and the sub net mask of that network.

System diagram



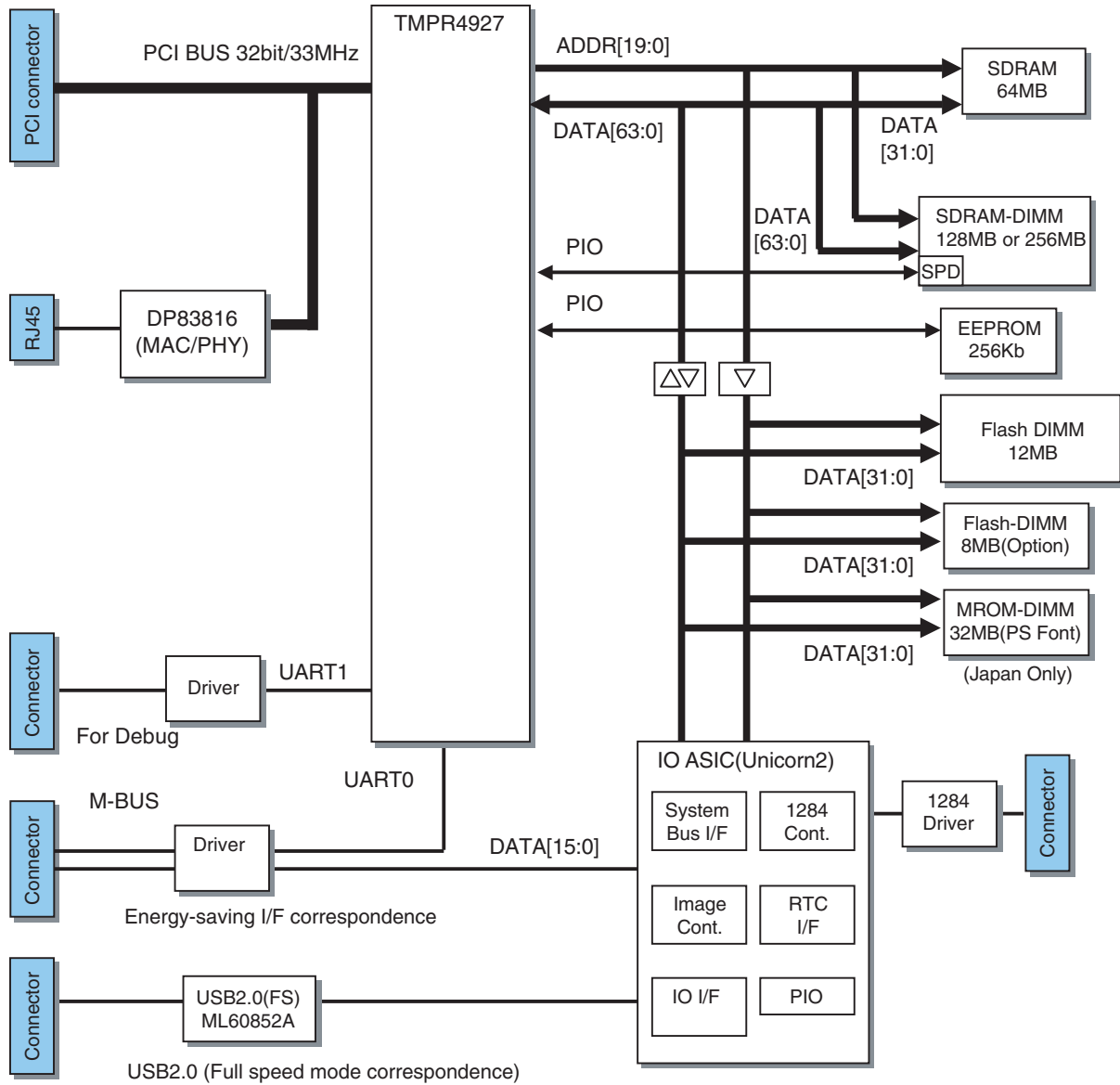
[9] TROUBLE CODE LIST

Trouble code		Details of trouble	
Main code	Sub code		
F9	00	Content	MCU-PRT communication trouble
		Details	Communication establishment error/framing/parity/protocol error
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.
	10	Content	Printer PWB trouble
		Details	Communication trouble between MCU and printer PWB
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.
	80	Content	Printer PWB communication trouble (Protocol)
		Details	Communication trouble between MCU and printer PWB (Protocol error)
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.
	81	Content	Printer PWB communication trouble (Parity)
		Details	Communication trouble between MCU and printer PWB (Parity error)
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.

Trouble code		Details of trouble	
Main code	Sub code		
F9	82	Content	Printer PWB communication trouble (Overrun)
		Details	Communication trouble between MCU and printer PWB (Overrun error)
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.
	84	Content	Printer PWB communication trouble (Framing)
		Details	Communication trouble between MCU and printer PWB (Framing error)
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.
	88	Content	Printer PWB communication trouble (Timeout)
		Details	Communication trouble between MCU and printer PWB (Timeout error)
		Cause	Printer PWB connector disconnection Harness trouble between the printer PWB and the MCU PWB Motherboard connector pin breakage Printer PWB ROM trouble/Data disturbance
		Check and remedy	Check the connectors and harness of the printer PWB and MCU PWB. Check the grounding of the copier. Check ROM on printer PWB.
	99	Content	Machine-PCL board language error
		Details	The machine language setup does not coincide with the PCL board language setup.
		Cause	PCL board connection error SIM setup error
		Check and remedy	Check the firmware of the PCL board and the combination of the panel screen data, and download the correct version, if necessary. Check the machine language information. (Machine language setup: SIM 26-22)

[10] ELECTRICAL SECTION

1. Block diagram



SHARP PARTS GUIDE

CODE:00ZARP17//P1/

プリンタ コントローラー PRINT CONTROLLER

MODEL AR-P17

このパーツガイドに掲載されている表示価格ランクは消費税抜きです。

CONTENTS

- 1 梱包 & 付属品 (Packing material & Accessories)
- 2 PCL PWB UNIT(PCL PWB UNIT)
 - 索引 (Index)

市場における補修部品の在庫管理が、適正に運営出来る手助けとなることを、目的とします。

Bランク：性能・機能パーツ（センサー、クラッチ等の電気パーツ）、消耗パーツ。

Eランク：基板含むユニットパーツ。

Dランク：整備パーツ（外装、パッキング、同梱パーツ）。

Cランク：上記ランク以外のパーツ（基板の子部品を除いたもの）。

Rank A : Maintenance parts, and consumable parts which are not included in but closely related to maintenance parts

Rank B : Performance/function parts (sensors, clutches, and other electrical parts), consumable parts

Rank E : Unit parts including PWB

Rank D : Preparation parts (External fitting, packing, parts packed together)

Rank C : Parts other than the above (excluding sub components of PWB)

安全性・信頼性確保のため部品は、必ず正規のものをご使用下さい。

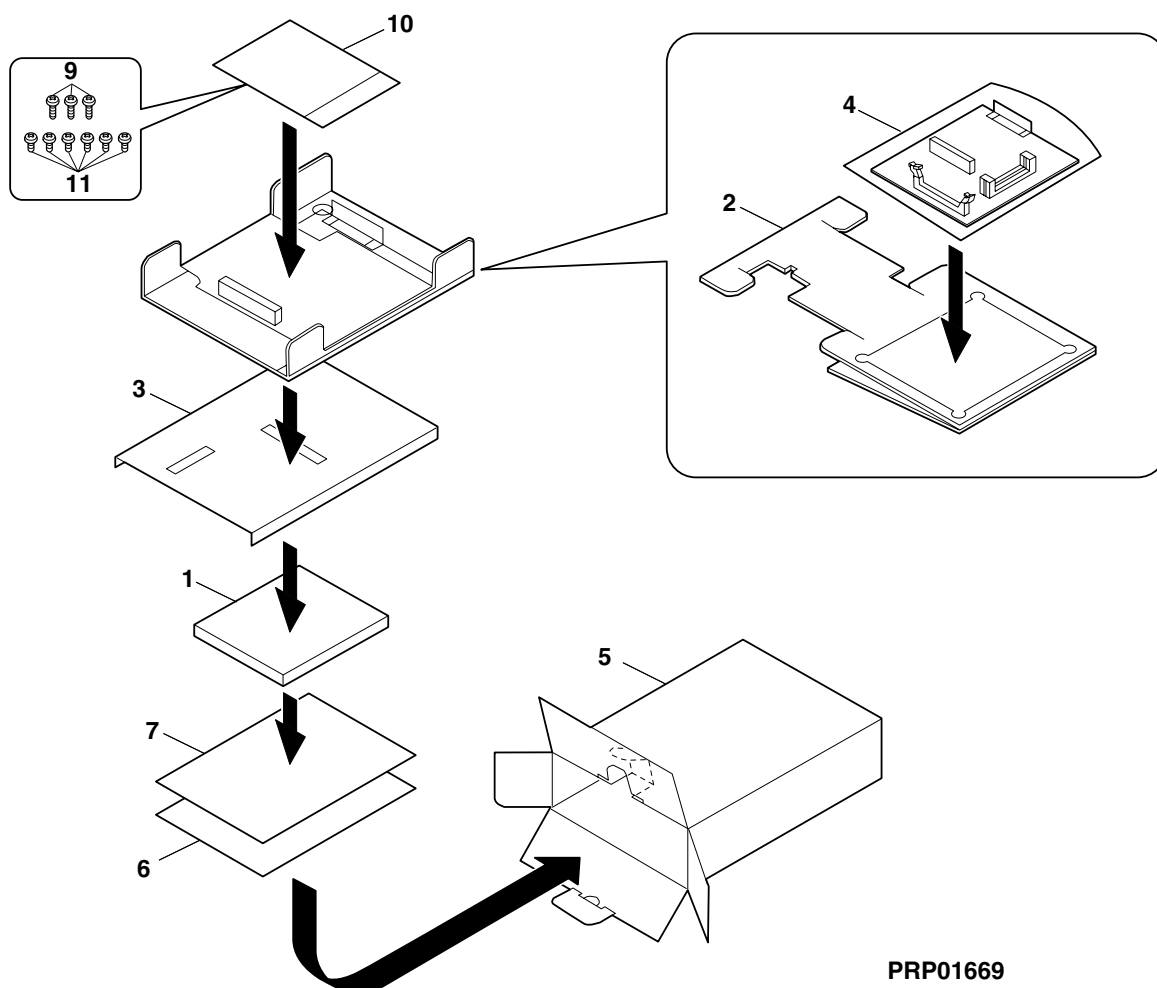
⚠ 印の商品は、安全上重要な部品です。交換をする時は、安全及び性能維持のため必ず指定の部品をご使用下さい。

Because parts marked with "△" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

- 当モデルのサービス資料には、この資料以外にサービスマニュアル（回路図含む）があります。合わせてご利用下さい。
- Other than this Parts Guide, please refer to documents Service Manual(including Circuit Diagram)of this model.
- Please use the 13 digit code described in the right hand corner of front cover of the document, when you place an order.
- For U.S. only-Use order codes provided in advertising literature. Do not order from parts department.

[illegible]

1 梱包 & 付属品 (Packing material & Accessories)



PRP01669

2 PCL PWB UNIT(PCL PWB UNIT)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	QCNCM0041QSZZ	AP	EQ		C	Connector(TX25-100P12) [CN3] コネクター
3	QCNCW0025QSZZ	AL	EB		C	Connector(TX24-60R-12) [CN9] コネクター
4	QCNCW0071GCZZ	AH	DX		C	Connector(57pin) [CN11] コネクター
5	QCNCW7045XCZZ	AG	DS		C	Connector(USB) [CN10] コネクター
6	QSOCN0010QSZZ	AV	FG	N	C	Socket(RJ-45) [CN12] ソケット
9	QSOCZ0079FCZZ	AN	EQ		C	Socket(100pin) [Japan][CN8] ソケット
11	RCILZ0353AFZZ	AH	DX		C	Chock coil(PLP3216S121SL2) [L1] チョークコイル
12	RCORF1013ACZZ	AD	DJ		C	Core(BLM41P600S) [L10-13] コア
13	RCORF1057ACZZ	AB	DJ		C	Ferrite beads(BLM21P221SG) [L2] フェライトビーズ
14	RCRUA0019QSZZ	AR	EQ	N	B	Crystal(25.00M OSC) [X1] クリスタル
15	RCRUA0020QSZZ	AL	EB	N	B	Crystal(12.00M OSC) [X2] クリスタル
16	RFILN0010QSZZ	AB	DD		C	Noise filter(BLM18BB121SN1D) [L3-6,14,15] ノイズフィルタ
18	RH-iX1013ACZZ	BK	HC		B	IC(SDRAM 256M) [IC5,6] IC
19	RMPTR4103ACZZ	AB	DD		B	Block resistor(10KΩ×4) [RN27,41,44,49,51] ブロック抵抗
	RMPTR4103ACZZ	AB	DD		B	Block resistor(10KΩ×4) [RN54,56,58,60] ブロック抵抗
	RMPTR4330ACZZ	AB	DD		B	Block resistor(33Ω×4) [RN1,2,6,8,20,22,23,25,26] ブロック抵抗
	RMPTR4330ACZZ	AB	DD		B	Block resistor(33Ω×4) [RN28-40,42,43,45-48] ブロック抵抗
	RMPTR4330ACZZ	AB	DD		B	Block resistor(33Ω×4) [RN50,52,53,55,57,59] ブロック抵抗
20	RMPTR4330ACZZ	AB	DD		B	Block resistor(33Ω×4) [RN65,66,67,68,71-76] ブロック抵抗
	RMPTR4472ACZZ	AB	DD		B	Block resistor(4.7KΩ×4) [RN24,61-64,69,70] ブロック抵抗
	RMPTR4560ACZZ	AA	DD		B	Block resistor(56Ω×4) [RN3,4,5,7,9-19,21] ブロック抵抗
25	VCCCCZ1HH100D	AA	DD		C	Capacitor(50WV 10pF) [C91] コンデンサ
26	VCCCCZ1HH101J	AA	DD		C	Capacitor(50WV 100pF) [C61-67,72-88] コンデンサ
28	VCCCCZ1HH680J	AA	DD		C	Capacitor(50WV 68pF) [C3,209,210] コンデンサ
29	VCCUCY1AJ105Z	AC	DD		C	Capacitor(10WV 1.0μF) [C96] コンデンサ
30	VCEAPH1CC106M	AC	DD		C	Capacitor(16WV 10μF) [C113,145,146] コンデンサ
32	VCEAPS1CC226M	AC	DJ		C	Capacitor(16WV 22μF) [C39,90,114] コンデンサ
33	VCEAPZ1CW107M	AD	DJ		C	Capacitor(16WV 100μF) [C4] コンデンサ
34	VCEAPZ1CW477M	AE	DS		C	Capacitor(16WV 470μF) [C46,47] コンデンサ
35	VCKYCZ1AB683K	AB	DD		C	Capacitor(10WV 68μF) [C147,150] コンデンサ
36	VCKYCZ1CB103K	AA	DD		C	Capacitor(16WV 0.010μF) [C97-105,108,110,112] コンデンサ
	VCKYCZ1CB103K	AA	DD		C	Capacitor(16WV 0.010μF) [C118,120,205,215] コンデンサ
	VCKYCZ1CF104Z	AB	DD		C	Capacitor(16WV 0.10μF) [C1,2,6-38,40,42-45] コンデンサ

2 PCL PWB UNIT(PCL PWB UNIT)

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
37	VCKYCZ1CF104Z	AB	DD		C	Capacitor(16WV 0.10μF) [C48-53,68-71,89] コンデンサ
	VCKYCZ1CF104Z	AB	DD		C	Capacitor(16WV 0.10μF) [C92-95,115-117,119] コンデンサ
	VCKYCZ1CF104Z	AB	DD		C	Capacitor(16WV 0.10μF) [C121,124-140,143,144] コンデンサ
	VCKYCZ1CF104Z	AB	DD		C	Capacitor(16WV 0.10μF) [C152-204,206,208,214] コンデンサ
38	VCKYCZ1HB102K	AA	DD		C	Capacitor(50WV 1000pF) [C106,107,109,111,148,149] コンデンサ
39	VHDD1FM3+++-1	AD	DJ		B	Diode(D1FM3) [D2] ダイオード
40	VH1DP83816+-1	BE	GN		B	IC(DP83816) [IC24] IC
44	VH1PST5981N-1	AF	DS		B	IC(PST5981N) [IC31] IC
46	VH124WC256K-1	AV	FG		B	EEPROM(24WC256K) [IC3] EEPROM
47	VH160852ATB-1	AX	FG		B	IC(60852ATB) [IC21] IC
48	VH174LCX08FT1	AF	DS		B	IC(74LCX08FT1) [IC2] IC
49	VH174LCX14FT1	AF	DS		B	IC(74LCX14FT1) [IC4] IC
50	VH174LCX244FT	AH	DX		B	IC(TC74LCX244) [IC8,10,12,15,20,30] IC
51	VH174LCX245FT	AH	DX		B	IC(74LCX245FT) [IC7,9,11,13,18,19] IC
52	VH174LVX16128	AP	EQ		B	IC(74LVX16128) [IC22] IC
53	VH193C46VI+-1	AE	DS	N	B	IC(93C46VI) [IC26] IC
54	VHPLT1P67A+-1	AC	DJ		B	Diode(LT1P67A) [D1] ダイオード
55	VHVICPS1.2/-1	AF	DS		B	IC proteclot(ICPS1.2) [F1] ICプロテクター
56	VRS-CZ1JD000J	AA	DD		C	Resistor(1/16W 0Ω ±5%) [R85-92,165-176] 抵抗
	VRS-CZ1JD000J	AA	DD		C	Resistor(1/16W 0Ω ±5%) [R180-184,189,197,209] 抵抗
	VRS-CZ1JD000J	AA	DD		C	Resistor(1/16W 0Ω ±5%) [R213,214,248,255-257] 抵抗
57	VRS-CZ1JD100J	AA	DD		C	Resistor(1/16W 10Ω ±5%) [R94,136-150,187,205,219] 抵抗
	VRS-CZ1JD100J	AA	DD		C	Resistor(1/16W 10Ω ±5%) [R220,223-226,229-232] 抵抗
	VRS-CZ1JD100J	AA	DD		C	Resistor(1/16W 10Ω ±5%) [R245,267-274] 抵抗
58	VRS-CZ1JD102J	AA	DD		C	Resistor(1/16W 1.0KΩ ±5%) [R2-6,18,32,34-37] 抵抗
	VRS-CZ1JD102J	AA	DD		C	Resistor(1/16W 1.0KΩ ±5%) [R156,157,247] 抵抗
	VRS-CZ1JD103J	AA	DD		C	Resistor(1/16W 10KΩ ±5%) [R17,19,26,29,30,31,38,39,95] 抵抗
59	VRS-CZ1JD103J	AA	DD		C	Resistor(1/16W 10KΩ ±5%) [R99,110-113,118,120,121] 抵抗
	VRS-CZ1JD103J	AA	DD		C	Resistor(1/16W 10KΩ ±5%) [R158,159,178,179,185,186] 抵抗
	VRS-CZ1JD103J	AA	DD		C	Resistor(1/16W 10KΩ ±5%) [R204,206,210,263,264,291] 抵抗
60	VRS-CZ1JD121J	AA	DD		C	Resistor(1/16W 120Ω ±5%) [R100] 抵抗
61	VRS-CZ1JD152J	AA	DD		C	Resistor(1/16W 1.5KΩ ±5%) [R160] 抵抗
62	VRS-CZ1JD153J	AA	DD		C	Resistor(1/16W 15KΩ ±5%) [R228] 抵抗
63	VRS-CZ1JD220J	AA	DD		C	Resistor(1/16W 220Ω ±5%) [R24] 抵抗
64	VRS-CZ1JD221J	AA	DD		C	Resistor(1/16W 220Ω ±5%) [R154] 抵抗
65	VRS-CZ1JD302J	AA	DD		C	Resistor(1/16W 300KΩ ±5%) [R227] 抵抗
66	VRS-CZ1JD330J	AA	DD		C	Resistor(1/16W 33Ω ±5%) [R9,10,13-16,20-23,25,42] 抵抗
	VRS-CZ1JD330J	AA	DD		C	Resistor(1/16W 33Ω ±5%) [R43,45,46,50,51,53,55,56] 抵抗
	VRS-CZ1JD330J	AA	DD		C	Resistor(1/16W 33Ω ±5%) [R57,59,60-66,93,102-109] 抵抗
	VRS-CZ1JD330J	AA	DD		C	Resistor(1/16W 33Ω ±5%) [R114-117,119,258,260-262] 抵抗
	VRS-CZ1JD330J	AA	DD		C	Resistor(1/16W 33Ω ±5%) [R265,266,275-287] 抵抗
67	VRS-CZ1JD470J	AA	DD		C	Resistor(1/16W 47Ω ±5%) [R44,47,48,49,243] 抵抗
68	VRS-CZ1JD471J	AA	DD		C	Resistor(1/16W 470Ω ±5%) [R188,198] 抵抗
69	VRS-CZ1JD472J	AA	DD		C	Resistor(1/16W 4.7KΩ ±5%) [R40,41,52,69,70] 抵抗
	VRS-CZ1JD472J	AA	DD		C	Resistor(1/16W 4.7KΩ ±5%) [R74-76,101,123,124] 抵抗
	VRS-CZ1JD472J	AA	DD		C	Resistor(1/16W 4.7KΩ ±5%) [R151,152,155,161] 抵抗
	VRS-CZ1JD472J	AA	DD		C	Resistor(1/16W 4.7KΩ ±5%) [R217,221,246,249] 抵抗
70	VRS-CZ1JD560J	AA	DD		C	Resistor(1/16W 56Ω ±5%) [R54,96,97,98] 抵抗
71	VRS-CZ1JD822J	AA	DD		C	Resistor(1/16W 8.2KΩ ±5%) [R27,28,77-84] 抵抗
72	VRS-TS2AD220J	AA	DD		C	Resistor(1/10W 220Ω ±5%) [R162,163,164] 抵抗
73	VRS-TX2HDR24J	AA	DD	N	C	Resistor(1/2W 0.24Ω ±5%) [R222] 抵抗
74	VRSCY1JR49R9F	AA	DD		C	Resistor(1/10W 49.9Ω ±5%) [R190,200] 抵抗
75	VRSCY1JR54R9F	AA	DD		C	Resistor(1/10W 54.9Ω ±5%) [R193,202] 抵抗
76	VSDTC114YK/-1	AC	ZZ		B	Transistor(DTC114YK) [TR1] トランジスタ
</						

■ 索引 (Index)

PARTS CODE	JAPAN ONLY ORDER CODE	NO.	PRICE R. Ex. Ja.		NEW	P/R
{C}						
CDSKA0033QS31	578 966 0138	1- 1	BA	FX	N	D
{L}						
LSUPM0002QSZZ	578 233 0027	1- 101	AE	DJ	N	C
LX-BZ0024QSZZ	578 970 0222	1- 9	AA	DD		C
{Q}						
QCNCM0041QSZZ	578 510 0271	2- 1	AP	EQ		C
QCNCW0025QSZZ	578 510 0243	2- 3	AL	EB		C
QCNCW0071GCZZ	578 510 0211	2- 4	AH	DX		C
QCNCW7045XCZZ	578 510 0250	2- 5	AG	DS		C
QSOCN0010QSZZ	578 527 0033	2- 6	AV	FG	N	C
QSOCZ0079FCZZ	578 527 0029	2- 9	AN	EQ		C
{R}						
RCiLZ0353AFZZ	596 614 0565	2- 11	AH	DX		C
RCORF1013ACZZ	596 615 0063	2- 12	AD	DJ		C
RCORF1057ACZZ	596 615 0149	2- 13	AB	DJ		C
RCRUA0019QSZZ	578 616 0072	2- 14	AR	EQ	N	B
RCRUA0020QSZZ	578 616 0073	2- 15	AL	EB	N	B
RFiLN0010QSZZ	578 621 0076	2- 16	AB	DD		C
RH-iX1013ACZZ	596 573 4270	2- 18	BK	HC		B
RMPTR4103ACZZ	567 631 0100	2- 19	AB	DD		B
RMPTR4330ACZZ	567 631 0109	2- 20	AB	DD		B
RMPTR4472ACZZ	567 631 0102	2- 21	AB	DD		B
RMPTR4560ACZZ	596 631 0499	2- 22	AA	DD		B
{S}						
SPAKA399ACCZZ	505 902 5004	1- 4	AB	DD		D
SSAKA0006UCZZ	541 906 1016	1- 10	AA	DD		D
{T}						
TCADZ0288QSZZ	572 913 1007	1- 6	AD	DJ	N	D
TiNSEI077QSZZ	578 916 0817	1- 7	AP	EQ	N	D
TiNSF1078QSZZ	578 916 0818	1- 7	AS	EQ	N	D
TiNSJ1076QSZZ	578 916 0833	1- 7	AQ	EQ	N	D
TiNSS1079QSZZ	578 916 0819	1- 7	AS	EQ	N	D
{V}						
VCCCCZ1HH100D	521 593 0027	2- 25	AA	DD		C
VCCCCZ1HH101J	521 593 0028	2- 26	AA	DD		C
VCCCCZ1HH680J	567 593 0316	2- 28	AA	DD		C
VCCUCY1AJ105Z	596 593 0899	2- 29	AC	DD		C
VCEAPH1CC106M	521 594 0001	2- 30	AC	DD		C
VCEAPS1CC226M	593 594 0584	2- 32	AC	DJ		C
VCEAPZ1CW107M	567 594 0133	2- 33	AD	DJ		C
VCEAPZ1CW477M	575 594 0013	2- 34	AE	DS		C
VCKYCZ1AB683K	572 593 0354	2- 35	AB	DD		C
VCKYCZ1CB103K	595 593 1450	2- 36	AA	DD		C
VCKYCZ1CF104Z	521 593 0017	2- 37	AB	DD		C
VCKYCZ1HB102K	521 593 0030	2- 38	AA	DD		C
VHDD1FM3+-+1	523 570 0014	2- 39	AD	DJ		B
VHi24WC256K-1	578 573 1200	2- 46	AV	FG		B
VHi29L12802QS	578 573 1359	1-102	BQ	LP	N	B
VHi60852ATB-1	572 573 2910	2- 47	AX	FG		B
VHi74LCX08FT1	521 573 0491	2- 48	AF	DS		B
VHi74LCX14FT1	572 573 2024	2- 49	AF	DS		B
VHi74LCX244FT	521 573 0388	2- 50	AH	DX		B
VHi74LCX245FT	594 573 1659	2- 51	AH	DX		B
VHi74LVX16128	578 573 1048	2- 52	AP	EQ		B
VHi93C46Vi+-1	578 573 1358	2- 53	AE	DS	N	B
VHiDP83816+-1	567 573 1648	2- 40	BE	GN		B
VHiPST598iN-1	523 573 0081	2- 44	AF	DS		B
VHPLT1P67A+-1	578 574 0048	2- 54	AC	DJ		B
VHV1CPS1.2/-1	567 577 0014	2- 55	AF	DS		B
VRSCY1JR49R9F	567 581 0630	2- 74	AA	DD		C
VRSCY1JR54R9F	596 581 3342	2- 75	AA	DD		C
VRS-CZ1JD000J	521 581 0082	2- 56	AA	DD		C
VRS-CZ1JD100J	567 581 0524	2- 57	AA	DD		C
VRS-CZ1JD102J	521 581 0093	2- 58	AA	DD		C
VRS-CZ1JD103J	521 581 0085	2- 59	AA	DD		C
VRS-CZ1JD121J	567 581 0526	2- 60	AA	DD		C
VRS-CZ1JD152J	521 581 0175	2- 61	AA	DD		C
VRS-CZ1JD153J	567 581 0528	2- 62	AA	DD		C
VRS-CZ1JD220J	567 581 0532	2- 63	AA	DD		C
VRS-CZ1JD221J	567 581 0533	2- 64	AA	DD		C
VRS-CZ1JD302J	572 581 2072	2- 65	AA	DD		C
VRS-CZ1JD330J	521 581 0202	2- 66	AA	DD		C
VRS-CZ1JD470J	521 581 0170	2- 67	AA	DD		C
VRS-CZ1JD471J	567 581 0617	2- 68	AA	DD		C
VRS-CZ1JD472J	521 581 0088	2- 69	AA	DD		C
VRS-CZ1JD560J	572 581 2084	2- 70	AA	DD		C
VRS-CZ1JD822J	572 581 2066	2- 71	AA	DD		C
VRS-TS2AD220J	500 581 5044	2- 72	AA	DD		C

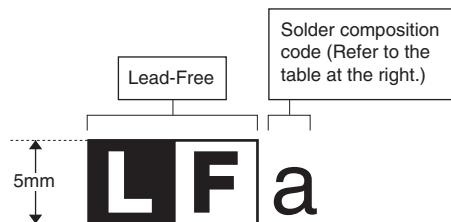
[illegible]

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.

The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi	b
Sn-Ag-Bi-Cu	
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P	p
Bi-Sn-Ag	

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a break-down or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrektter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)

"BATTERY DISPOSAL"
THIS PRODUCT CONTAINS A LITHIUM PRIMARY
(MANGANESE DIOXIDE) MEMORY BACK-UP BATTERY
THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE
BATTERY FROM THE PRODUCT AND CONTACT YOUR
LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION
ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"
CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE
MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANESE)
QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA
PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE
AGENCE ENVIRONNEMENTALE LOCALE POUR DES
INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET
DE TRAITEMENT.



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